

**SYMMETRIES AND ASYMMETRIES IN SOFIA GUBAIDULINA'S *QUASI*
*HOQUETUS***

AND

***ODE TO BROKEN THINGS* FOR CLARINET, CELLO AND PIANO**

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In the first part of this dissertation, I will analyze Sofia Gubaidulina's *Quasi Hoquetus* for viola, bassoon and piano. Gubaidulina (b.1931) is a Russian composer whose musical aesthetic features religious and symbolic elements. She often utilizes numerical series to create rhythmic and structural frameworks in her works.

Quasi Hoquetus was written in 1984, when Gubaidulina had just started to use numerical series in her works. Therefore, this piece shows how she started to apply the number series in her works, and how she develops her own compositional method, which she calls the 'Rhythm of Form.' Also, the piece shows her musical intuition, her free compositional thought processes, more clearly than works that were written from the 1990s on, in which she composed with numerical series more strictly and systematically. In addition, this work features a number of intriguing harmonic, melodic and rhythmic elements that demonstrate Gubaidulina's unique compositional language, especially in regards to the concepts of symmetries and asymmetries. I will focus not only on rhythm but also on other musical structures, so that I can gain insight into her overall compositional process; specifically I will uncover how Gubaidulina applies the concept of symmetries and asymmetries to the formal, harmonic, rhythmic and melodic plans, and how she accomplishes a balance between symmetries and asymmetries throughout the work.

The second part of this dissertation, an original composition entitled *Ode to Broken Things* for clarinet, cello and piano, was inspired by Pablo Neruda's poem, *Ode to Broken Things*. I explore the idea

of the relationship between the musical tension and resolution created by musical gestures, dynamics, timbre, register, harmonic progression and rhythm. The tension of this piece is represented as ‘invisible’ and ‘deliberate’ but having the power to break the audiences’ expectations, as described in the first verse of Pablo Neruda’s poem, “Things get broken at home like they were pushed by an invisible, deliberate smasher.” The resolution implies the things “which nobody broke but got broken anyway”.

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PREFACE

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1.0 INTRODUCTION

Born to a Russian-Tatar family in 1931, Gubaidulina is one of the great figures in contemporary music. Especially since the early 1980s with her work, *Offertorium* (1980), which was dedicated to violinist Gidon Kramer, her music has been recognized and acclaimed in the West. Even though Gubaidulina's works have been performed all over the world, research in English on her music has been relatively rare. This is because her music was not exposed to the West until 1981 due to Russia's political circumstances under the totalitarianism of Soviet ideology. During the Communist era, Russia severely restricted what was allowed into and out of its borders. Russian artists were limited to creating art on Soviet-approved topics and were not able to promote their art outside of the country. This resulted in composers like Gubaidulina not having an audience outside of the USSR until around the time of the collapse of the Soviet Union when border restrictions eased.

To date, there has been only one book written about Gubaidulina in English¹: Michael Kurtz's biography. There have been short analytical papers by the Russian musicologist Valentina Cholopova mainly focusing on Gubaidulina's use of rhythm. There have been a few interviews, primarily with Vera Lukomsky, Gerard McBurney, Laurel Fay and Claire Polin, published as short journal articles. These interviews focus on her biographical background and her overall interests in writing music. There are also five analytical dissertations that analyze specific pieces and a few dissertations written as guides for conducting and performing her music.² More relevant to the present dissertation, the American musicologist Jennifer Denise Milne has provided an overview of Gubaidulina's concept of the 'Rhythm of Form,' specifically analyzing *Silenzio* for Bayan, Violin, and Cello (1991) and *Meditation on the Bach*

¹ Kurtz Michael. *Sofia Gubaidulina: a biography* (Bloomington: Indiana University Press, 2007).

² Wei Cheng. A Conductor's Guide to Sofia Gubaidulina's "St. John Passion." (University of Cincinnati, 2006), Jacqueline May Wilson. "The Concerto for Bassoon and Low Strings by Sofia Gubaidulina: a performance guide." (University of Iowa, 2011).

Chorale "Vor deinen Thron tret ich hiermit" for Harpsichord and String Quartet (1993).³ However, this body of research has all been written by musicologists focused on comparative analyses of several pieces and on Gubaidulina's background and compositional philosophy.

Gubaidulina opposed the spread of Communism in Russia together with fellow composers Schnittke and Denisov.⁴ This has led these three to being called the "Great Troyka." Even though these composers were subjected to the same difficult political circumstances, each of them developed his or her own musical aesthetics differently. Compared with Schnittke and Denisov, Gubaidulina seems to have remained relatively unaffected by Shostakovich's imposing influence. She said: "Nobody took much notice of me. They could always dismiss what I did as simply female eccentricity."⁵ However, it is also true that she had difficulty finding venues to perform her works in Russia as a woman composer: "Our greatest problem was not criticism, but simply, indiscriminate bans on performance. As a consequence we were not only denied the opportunity to hear ourselves, but also the chance to receive honest evaluation."⁶ This difficult political situation may have been one reason why she embedded her dissent in symbolism rather than expressing it more directly.⁷

In addition, the religious symbolism in her work is influenced by Russian traditions. Gerard McBurney writes: "The traditions of religious and symbolic speculation which were so prominent in Russian art at the turn of the century are important to her."⁸ Gubaidulina, a Russian Orthodox Christian, states that "serious art can be distinguished from the ephemeral by its connection to God...any convincing

³ Jennifer Denise Milne. "The Rhythm of Form: Compositional Processes in the Music of Sofia Gubaidulina." Ph.D. diss., University of Washington, 2007.

⁴ Vera Lukomsky and Sofia Gubaidulina, "Sofia Gubaidulina: 'My Desire Is Always to Rebel, to swim against the Stream!'," *Perspectives of New Music*, Vol. 36, No. 1 (Winter 1998), 6.

⁵ Gerard McBurney, "Encountering Gubaydulina." *The Musical Times*, Vol. 129, No. 1741 (March, 1988), 121.

⁶ Elliott Schwartz and Barney Childs. *Contemporary Composers on Contemporary Music* (New York: Da Capo Press, 1998), 262.

⁷ Gerard McBurney, *Ibid.*

⁸ Gerard McBurney, *Ibid.*

form of worship is a path to His Throne. Music is a form of worship.”⁹ Her belief that music and worship are connected influences Gubaidulina to include symbolic features in her works. This is evident in her music with its references to the Apocalypse and the Last Judgment, and with her interest in employing religious musical symbols, such as the cross, crucifixion, resurrection, and Transfiguration.¹⁰

Gubaidulina’s music is also known for its unusual combinations of instruments. Her early experiences in film music and working in electronic studios influenced her in these directions. In 1975, Gubaidulina founded the improvisational group Astaea with composer Victor Suslin and ethnomusicologist Vyacheslav Artyomov. Through improvisation, Gubaidulina explored Russian, Caucasian, and Asian folk and ritual instruments. In addition, she mastered her performance skills as a percussionist and experimented with nonstandard combinations of instruments and unconventional methods of sound production.¹¹

Since the early 1980s, Gubaidulina has used numerical series as an essential constructive principle and as a means of imbuing pieces with symbolic meaning. Even though the Fibonacci series¹² has been used in works by many composers—including Debussy, Bartok, and Stockhausen—Gubaidulina’s application is unique. She creates numerical plots in diverse ways in almost all of her works since the early 1980s. For Gubaidulina, the Fibonacci series is the principal organizing feature of all organic life and the most universal and balanced law of life, since the ratio of any two neighboring numbers in the Fibonacci series forms a Golden ratio. She uses the Fibonacci series to develop rhythmic ideas and balance form in music,¹³ which she calls the ‘Rhythm of Form.’ In addition, Gubaidulina

⁹ Claire Polin, “The Composer as Seer, but not Prophet.” *Tempo (New Series)* 3.190 (1994): 14.

¹⁰ Vera Lukomsky and Sofia Gubaidulina, “‘The Eucharist in My Fantasy’: Interview with Sofia Gubaidulina.” *Tempo* (1998): 31.

¹¹ Larry Sitsky. *Music of the twentieth-century avant-garde: a biocritical sourcebook* (Greenwood Reference C, 2002), 56.

¹² In the Fibonacci series, each subsequent number is the sum of the previous two (e.g. 1,1,2,3,5,7...).

¹³ Larry Sitsky, *Ibid.*

connects her interests in rhythm and the Fibonacci series with her religious spirituality. She has repeatedly stated that rhythm is the most important element in contemporary music:

...At present I am preoccupied with the issues of rhythm and rhythmic proportionality in musical form, which I consider to be the main experiment in my life. All other things are the intuitive work of fantasy—this is a normal creative process. But the problem is that the 20th century has moved from atonality and serialism to sonorism. As a consequence, our musical material, like our world, became extremely rich and over-complicated...But in my opinion, art does not need so much richness. There was a period in my life when I was actively involved in a search for new timbres, new textures, new types of articulation. Now I am calmer about it. My main concern is to cure the excessiveness of musical material by the method of time structuring...I start from the Fibonacci series...¹⁴

Gubaidulina uses numbers to convey symbolic meaning. For example, she uses the number seven, considered to be a divine number, to prescribe the number of movements (*Night in Memphis*, *Stufen* for orchestra), the number of sections (*Quasi Hoquetus*), the number of performers (*In the beginning was the Rhythm*), and the number of instruments (*...Heute frueh, kurz vor dem Aufwachen...*).¹⁵ Also, she works with the ‘Bach’ numbers (14, 41)¹⁶ because she admires Bach, an important Christian composer; she also includes the number 37 (Jesus Christ) and 73 (the Death of Christ) in *Meditation on the Bach Chorale “Vor deinen Thron tret ich hiermit”* (1993) by having the number of quarter-notes or the number of entrances equal to these holy values.¹⁷

Even though Gubaidulina’s music often incorporates an elaborate pre-compositional plan of numerical series, her musical style is experienced as expressive, dramatic, and often surprising. She claims that composers need to be distinguished from architects or scientists because a composers’ intuition is an essential element in writing music. She writes rhythmic ideas and formal plans more systematically, employing the ‘Rhythm of Form,’ while she tends to follow her intuition for creating

¹⁴ Vera Lukomsky and Sofia Gubaidulina, “‘Hearing the Subconscious’: Interview with Sofia Gubaidulina”. *Tempo, New Series*, No. 209 (Jul., 1999), 27-28.

¹⁵ Valeria Tsenova. “Magic numbers in the music of Sofia Gubaidulina.” *Muzikologija* 2 (2002): 253.

¹⁶ These are the sum of all the letters constituting Bach’s name (A=1, B=2, C=3, D=4, E=5, F=6, G=7, H=8, I,J=9, K=10, L=11, M=12, N=13, O=14, P=15, Q=16, R=17, S=18, T=19, U,V=20, W=21, X=22, Y=23, Z=24). The number 41 represents “J.S.BACH (9+18+2+1+3+8),” and the number 14 represents “BACH.”

¹⁷ Vera Lokomsky and Sofia Gubaidulina, “Sofia Gubaidulina: “My Desire is Always to Rebel, to Swim against the Stream!”” *Perspectives of New Music*, Vol. 36, No. 1(Winter 1998), 17-18.

melodic and harmonic ideas. She thinks that her subconscious contains not only good things but also evil things, and this ‘Rhythm of Form’ can help to filter them.¹⁸ Also, she asserts that she is trying to discover the perfect balance between intuition and intellect when composing music, as she states, “... the most valuable side of the artist definitely is in his or her intuitive activity. But this intuitive richness must be structured, must be illuminated by intellectual work.”¹⁹ Therefore, her musical aesthetic can be described as a fusion of systematic and intuitive processes.

Gubaidulina’s compositional output can be divided into three stages demarcated by her evolving compositional techniques.²⁰ The first period includes works from 1965 through the early 1980s and is characterized by Gubaidulina’s interest in exploring new instrumental combinations and experimenting with serial techniques.²¹ The second period encompasses works from 1983 through the early 1990s, in which she starts to use the Fibonacci series and other related numerical series to determine the ‘Rhythm of Form.’ The third period starts in 1994 with her Fourth String Quartet, which incorporates quarter-tone temperament, and this period continues into the present.

The work I analyze here, *Quasi Hoquetus* for viola, bassoon and piano, was written in 1984, near the beginning of Gubaidulina’s second period, when she had just started to use the Fibonacci series in her music. The work’s title, *Quasi Hoquetus*, also suggests Gubaidulina’s interests in rhythm and silence because the toccata materials and rests take on important roles throughout the piece. ‘Hoquetus’ is defined by Oxford Music Online as “the medieval term for a contrapuntal technique of manipulating silence as a precise mensural value in the 13th and 14th centuries. It occurs in a single voice or, most commonly, on two or more voices which display the dovetailing of sounds and silences by means of the staggered

¹⁸ Jennifer Denise Milne, *Ibid.* 21-37.

¹⁹ Vera Lukomsky and Sofia Gubaidulina, “‘The Eucharist in My Fantasy’: Interview with Sofia Gubaidulina.” *Tempo* (1998): 30.

²⁰ Jennifer Denise Milne, *Ibid.*

²¹ Elliott Schwartz and Barney Childs, *Ibid.* 262.

arrangement of rests.”²² Her title seems to give weight to the importance of silence. The piece starts with long harmonics in the viola against short passages of piano with substantive silences in between. Finally, the prominence of alternating instrumental groups (primarily viola and bassoon against the piano) also represents this fundamental contrapuntal technique.

This work, written when Gubaidulina was just beginning to use the numerical structure that was to become one of her essential compositional techniques, reveals her early use of numerical series to determine rhythm and form. To best understand her use of the Fibonacci series, one must look at her original compositional ideas. Gubaidulina’s elaborate draft and numerical plans are preserved in the Paul Sacher Foundation in Switzerland, where I studied them in detail. Milne describes the rhythmic plan of the first three sections and found that the original transcription shows that the number of attacks follows the Fibonacci series as shown in Table 1.²³ The bold numbers indicate the Fibonacci numbers found in Gubaidulina’s sketch.

Table 1: Pre-compositional plan (Sections I-III)

	I	II	III		
Viola attacks	1+1+2+5+1	1+1+2+5+2	1+1+2+5	1+1+1	53
Bassoon attacks	1	2		1+1+1	55
Piano attacks	55 (5+3+13+34)+ 13	89 (5+8+21+55)+ 8+13	233 (5+8+21+55+55+89)		7 (2+5)

²² “Hocket.” *Oxford Music Online*, <http://www.oxfordmusiconline.com:80/subscriber/article/grove/music/13115> (accessed October 3, 2014)

²³ Jennifer Denise Milne, *Ibid.*

The Fibonacci series specifically controls the number of attacks in a phrase and determines the durations of notes or rests. Milne discusses the number of attacks in the first three sections of this work (of five in total) in order to provide an overview of the use of numerical series in Gubaidulina's second period. I will show how Gubaidulina develops rhythmic elements based on the Fibonacci series throughout the entire composition by closely examining Sections IV and V, which are climactic and much longer in length than Sections I-III.

I intend to apply a proportional analytical approach similar to Roy Howat's methodology.²⁴ In order to measure the proportionality, I will first determine the slowest common audible pulse for each section. Second, I will determine the Golden ratios (GRs) at both the micro-level and macro-level, following formal divisions delineated by textural, harmonic, rhythmic, melodic, and dynamic variations. Lastly, I will describe how the GR structures the work and how small and large musical events, including climaxes, are interrelated.

Not only will the rhythmic structure be discussed, but also the harmonic and melodic aspects of *Quasi Hoquetus*. Since the work is quasi-tonal, with its use of major-minor triads throughout the work, I will analyze the harmonic progressions in each section using functional harmony. I will then discuss how the change of the tonal centricity in each section progresses and functions. In terms of melodic components, I will show that Gubaidulina utilizes symmetrical and asymmetrical sets to build melodic ideas. In addition, my study will show how her use of symbolism and her religious spirituality is presented and embodied throughout the work.

In the harmonic, melodic, and rhythmic domains, symmetry and asymmetry co-exist throughout the piece. Gubaidulina uses the asymmetric ratio in the Fibonacci series for the overall formal plan, but she also works on creating symmetries through the harmonic, rhythmic and melodic plans in the work.

²⁴ Roy Howat. *Debussy in Proportion: a Musical Analysis* (Cambridge University Press, 1986).

For instance, the Golden ratio is not only used for determining the number of notes in each section, but the 1-to-1 ratio is also found in the formal plan. It determines the number of measures and the symmetrical placements of particular dyads throughout the piece. In addition, Gubaidulina's harmonic plan is based on the symmetry of key centricity and symmetric and asymmetric sets are interrelated throughout the piece. I will reveal how she applies these two contrasting concepts in more detail in the following analysis

2.0 PRE-COMPOSITIONAL PLAN OF *QUASI HOQUETUS*

The number of attacks, duration of notes and phrase length throughout the piece are derived from the Fibonacci series. Gubaidulina's original draft in the Paul Sacher Foundation archives shows the piece's overall formal structure and the multiple number series that Gubaidulina utilizes. The original draft includes a few texts in Russian and drawings that suggest the shape of the melodic structure. The draft also has some marks that she tried to erase or add and there are numbers, drawings, and texts that are hard to decipher. Important numbers found in the original sketch will be discussed, because they illustrate both how Gubaidulina utilizes the number series at a local level and how the number series generates the overall form of the piece.

2.1 Formal Plan

According to Gubaidulina's original sketch, *Quasi Hoquetus* has five large sections, which are delineated by the use of a number series derived from the Fibonacci series (see Table 2).²⁵ Roman numerals I through V divide the sections, and the vertical bars in section IV demarcate smaller episodes within it. The total number of sections of the piece is therefore seven, a number with religious connotations. In addition, numbers are written below every section, and these numbers represent the total number of attacks in the recurring toccata-like material of each section.

Although these numbers (55, 89, 233, 610, 987+21) are not in an exact Fibonacci sequence, they form Golden ratios (GRs)²⁶ in various ways. The sum of the numbers for Sections I and II (55+89), when compared to the number for Section III (233), yields a Golden ratio. Likewise, the sum of the numbers for

²⁵ Table 2 is not copied verbatim from Gubaidulina's original sketch; some modifications have been made for clarity of presentation.

²⁶ In mathematics, when the ratio of two quantities is same as the ratio of the sum of them to the larger quantity, it is called a "Golden ratio ($\approx 1:1.6$).” The Golden ratio is interconnected with the Fibonacci Series because the sequence of two numbers forms a close Golden ratio. The higher the two sequenced numbers in the Fibonacci series get, the closer the ratio between the two numbers comes to the Golden ratio.

Sections I, II, and III (55+89+233), when compared to the number for Section IV (610), also forms a GR. Lastly, the number for Section IV (610), when compared to the number for Section V (987+21)²⁷, forms yet another GR. Therefore, the sum of the numbers of one section when related to the sum of the numbers of the next section yields the GR (see Figure 1 and Figure 2).

Table 2: Sections and numbers written in Gubaidulina's draft

Section	I (mm.1-21)	II (mm.22-45)	III (mm.46-101)	IV (mm.102-286)			V (mm.286-323)
Episode				i	ii	iii	
Numbers written in <u>Gubaidulina's</u> draft	55	89	233	610			987+21

²⁷ In Gubaidulina's draft, '987+21' is written for Section V.

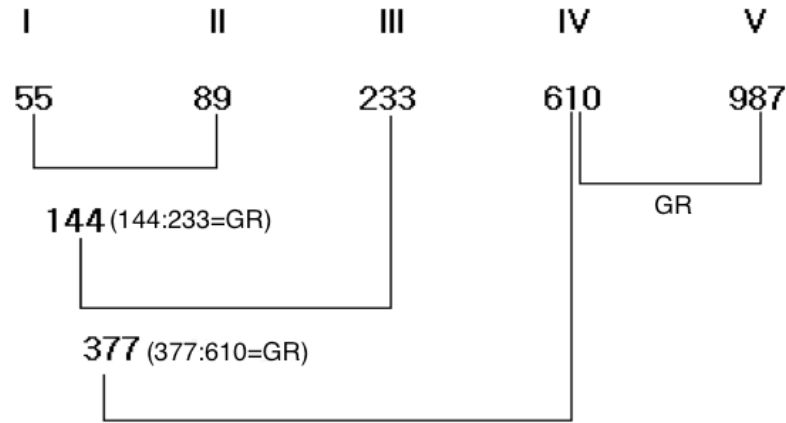


Figure 1: Golden ratio between adjacent sections

1	1	2	3	5	8	13	21	34	55	89	144	233	377	610	987
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Figure 2: Fibonacci series in Gubaidulina's draft

The final number in Gubaidulina's draft written under Section V, 21, is 3 multiples of the holy number 7, and the number in Section V, 987, is 141 multiples of 7 (see Table 2). Also, 21 is often represented as the union of the trinity ($21=3 \times 7$) in numerology. Finally, the sum of the numbers 987 and 21 is 1008, and this is 144 multiples of the holy number 7. The number 144 is also a member of the Fibonacci series. Gubaidulina's division of the number 1008 as $987+21$ in Section V reflects her religious beliefs as well as her interest in the Fibonacci series.²⁸

²⁸ Gubaidulina claims in several interviews with musicologists that the use of the number 7 in her works is a symbolic way of exposing her religious beliefs.

2.2 The Four-number Series and Numbers for Toccata Passages and Harmonics Passages

Gubaidulina's draft contains two notable number series and numbers that specify the number of attacks in the toccata passages²⁹ and harmonics passages, respectively. In Sections I through III, these two number series appear each as four-number series and they are written together as a pair. In contrast, in Section IV, the numbers for toccata passages are circled, various number series are used, and the numbers for harmonics passages appear as single numbers. In Section V, '987+21' is written for the toccata passages and there is no harmonics passage.

2.2.1 Toccata Number Series and Toccata Number

I identify the four-number series for toccata passages in Sections I through III as the Toccata Number Series (TNS) (see Table 3). I refer to the numbers for the toccata passages in Sections IV and V as the Toccata Number (TN).

All of the numbers for the toccata passages are derived from the Fibonacci series, but most of them do not occur in a sequential order. The TNS from Section I to Section III is distinguished by every number beginning with 5 (See Table 3). Even though the number 5 is not a holy number, it has an important meaning in this piece; the piece is divided into 5 sections and contains frequent quintuplet subdivisions. Five is the most frequently used number among the members of the Fibonacci series (see Table 4).

²⁹ According to Gubaidulina's draft and the score of *Quasi Hoquetus*, toccata music is defined as a repetitive figure with 16th-notes or 16th-septuplets.

Table 3: Toccata Number Series and Toccata Numbers

Section	I (TNS)	II (TNS)	III (TNS)	IV (TNS)		V (TNS)
Toccata Number Series and Toccata Numbers	5+3+13+34 =55	5+8+21+55 =89	5+8+21+55 =55	i	8+13+21+13+34+55=144	987+21
			55+89 =144	ii	144	
				iii	5+8+21+55+144=233 8,13,13,21=55 13 13,5,2,1=21	
Total number of attacks	55	89	89+144=233		144+144+233+55+13+21=610	987+21

Table 4: Frequency of Fibonacci series numbers used in the piece

Fibonacci series	1	2	3	5	8	13	21	34	55	89	144	233	377	610	987
Frequency	5	5	7	13	8	6	9	4	6	3	4	1	0	1	1

In TNS, the sum of the first two numbers forms the Golden ratio (GR) with the third number and the sum of the first three numbers also forms the GR with the last number, as seen in Figure 3. Rather than simply choosing four consecutive numbers of the Fibonacci series to make the GR between two neighboring numbers, Gubaidulina chose the four numbers selectively, so that the sum of two or three numbers forms the GR with the following number. For instance, in Section I, the TNS is represented as 5,3,13,34 instead of 3,5,8,13 in a sequenced order of the Fibonacci series. Here, she omits the number 8 between 3 and 13 and omits 21 between 13 and 34. As a result, the total number 8 (5+3) creates the GR

with the next number (13), and the total number 21 (5+21+13) forms the GR with the last number (34). In this arrangement, Gubaidulina makes the series begin with the same number (5) each time.

This process for forming Golden ratios is not only found in the TNS of Sections I through III, but also in the total number of attacks in the toccata passages of each section. This means that the same compositional process using the number series has been conducted at both the micro-level and macro-level (see Figure 3).

This numerical framework continues into Section V. Here, instead of a GR, there is a 1-to-1 ratio—illustrating a symmetrical ratio—between the sum of Section I through Section IV and the number in Section V (see Figure 3). Thus, the number 21 can be considered as an addendum. Perhaps this is because the number 21 (3×7 , 3=Trinity, 7=divine number) acts as an important symbol in this music.

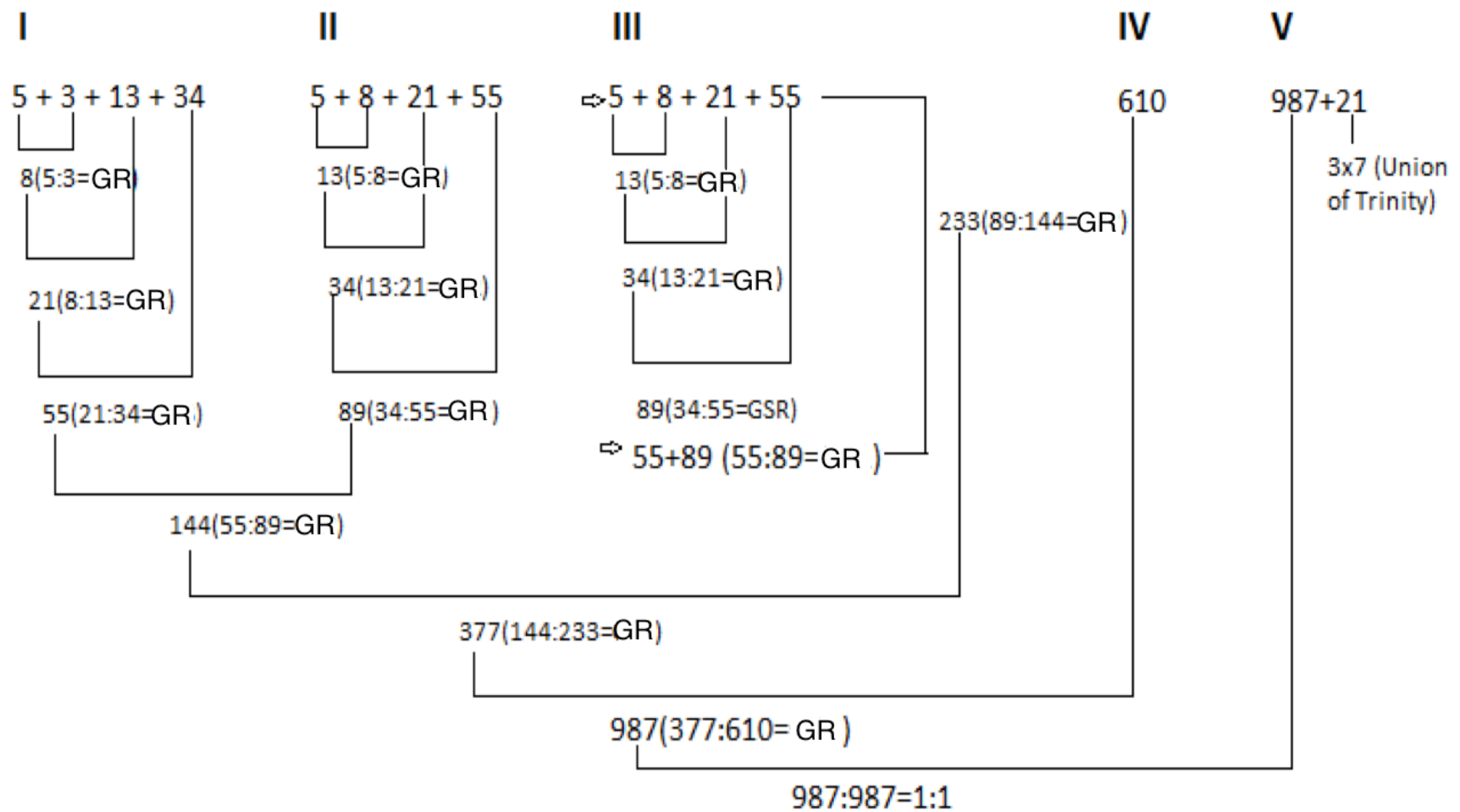


Figure 3: Golden ratios found in Section I through Section IV and a 1-to-1 ratio in Section V

2.2.2 Harmonics Number Series and Harmonics Number

There is also an important four-number series found in Gubaidulina's draft regarding the harmonics in the viola part. Each number in the number series corresponds to the number of occurrences of specific notes. The series '1-1-2-5' is written in a diamond shape in her draft, and this is accompanied by the word 'flag' ('flageolet') to mark the high harmonics in the viola.

Since the identical number series, '1-1-2-5' is found in Sections I through III, I have called this the Harmonics Number Series (HNS). I classify the number in Section IV as the Harmonics Number (HN), since it appears as a single number, not a series. The Harmonics Number is also associated with the harmonics in the viola. The HNS is represented once in each section from Section I to Section III and, in her draft in these same sections, the HNS is always written below the TNS. Thus, her draft also shows the contrasting musical gestures of the short and fast toccata passages and the long and resonant harmonics passages. Additionally, a Harmonics Number appears once in Section IV and is assigned to viola harmonics, thus sounding distinctive in the piece. This will be examined in more detail in Chapter 3, where I analyze how Gubaidulina specifically uses this Harmonics Number.

Table 5: Harmonics Number Series and Harmonics Number

Section	I (HNS)	II (HNS)	III (HNS)	IV (HN)		V
	Viola	Viola	Viola	i		
	1-1-2-5	1-1-2-5	1-1-2-5	ii	Viola/21	
				iii		

Table 5 above shows that Gubaidulina uses the numbers of the Fibonacci series for the HNS in Sections I through III, as well as a single HN in Section IV. First, it can be seen that the HNS has the

four-number series for the first three sections, as does the TNS (see table 3). Consequently, the first three expository sections set up a similar pattern of TNS and HNS in the piece.

In Section IV, the HN appears in the Codetta. In Gubaidulina's draft, there appear to be only two TNs (987+21) and no HN in Section V. I will examine in more detail the differences among the first three sections in terms of the use of the HNS in Chapter 3.

2.3 Numbers with the Contours of Melodic Progression

Besides the number series related to the number of attacks for the toccata passages and for the harmonics in the viola, there are some drawings and numbers that accompany the melodic structures in Gubaidulina's sketch. Along with the drawings showing the melodic contours, there are also numbers that coincide with the numbers of the attacks. First, the three-line drawings that are placed at the end of Sections I and II will be examined. In Section I, these three-line drawings occur in her draft with the number 13 and Russian words for 'piano' and 'water' (see Figure 4). Because there is a word indicating the instrument, this drawing can be assumed to control the attacks by the piano at the end of Sections I and II. With both the word 'water' in this drawing and the word written with the HNS meaning 'heaven' and 'sky,' it suggests the importance of symbolism in her compositional process. As she states³⁰: "I like very much the instrumental symbolism, when the instrument itself, its nature and individuality, hints at or implies a certain meaning. The instrument's quality and the meaning of the music join each other... I wanted to find the idea of the cross in the instruments themselves."³¹

In addition, each line of the three-line drawings stands for a layer of harmony, and the direction of the lines expresses the registral exchanges that might symbolize the cross. These crossed lines are represented only in Sections I and II, and the form of the crossed lines in Section II is expanded when

³⁰ Here, Gubaidulina is talking about her compositions in general, not just *Quasi Hoquetus*.

³¹ Vera Lukomsky. "Sofia Gubaidulina: "My Desire is Always to Rebel, To Swim Against the Stream!" Perspectives of New Music 36:1 (Winter 1998): 20

compared to Section I by having two crossed lines and the two-number series (8, 13). Only by analyzing the drawings in her draft can it be understood that Section II is an extended form of Section I.

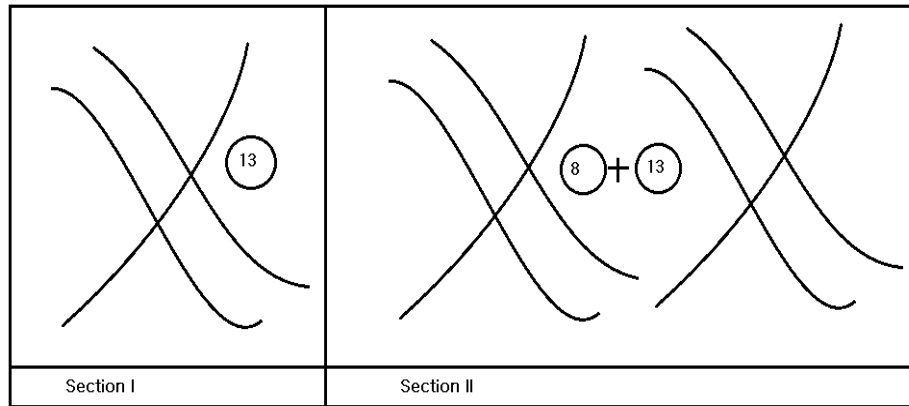


Figure 4: Drawings of the melodic contour in Gubaidulina's draft

In addition to the numbers by the crossed lines in the draft, the number 144 is represented with two ascending stair-shaped lines. These lines are shown at the culminating transition in Section IV along with a stair-shaped descending line with no number (see Figure 6). Specifically, each instrument is assigned to a particular line with the Russian word for 'continuous.' In addition, the three stair-shaped drawings in Gubaidulina's draft show the direction of musical contour, instrumentation, number of attacks, and characteristics of the musical gestures.



Figure 5: Drawings of curved ascending and descending lines in Gubaidulina's draft

The vertical lines in Gubaidulina's draft occur in Section IV alongside the numbers 4, 6, 6, 21, and 13 (see Figure 6). The numbers are not in a consecutive series, but rather are interspersed between toccata passages in Section IV. These numbers control the number of attacks by the piano. The first three numbers (4, 6, 6) occur in Episode i, the fourth (21) in Episode ii, and the last (13) in the Codetta of Section IV.

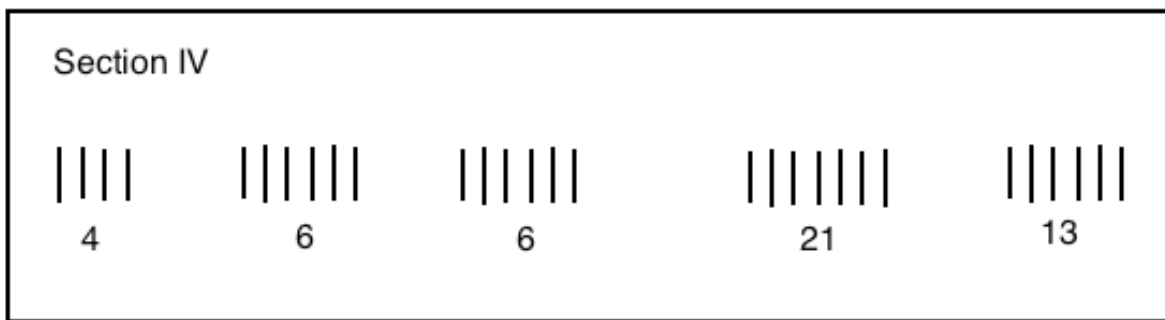


Figure 6. Vertical lines in Section IV in Gubaidulina's draft

The vertical lines represent chordal material, just as the numbers 4, 6, 6, and 21 are paired with major/minor triads, and the number 13 is linked to clusters in the piano. Even though the numbers 4 and 6 are not members of the Fibonacci series, the ratio of 4-to-6 approximates the GR (4:6=1:1.5). In addition, the vertical line with the number 21 occurs with the word for 'shimmering' and the last vertical line (13)

has the word ‘passionate.’ For the ‘shimmering’ passage, Gubaidulina uses *sul ponticello* in the viola. The final number, 13, is associated with the clusters in the piano with *sf* dynamics, giving the passage a passionate character. Here, her drawing in the draft is again connected with the number and placement of attacks and the character of the musical gestures, including timbre, dynamics and articulation.

2.4 Continuity and Discontinuity

The two most frequently used words in Gubaidulina’s draft are ‘continuous’ and ‘discontinuous.’ This is an important duality throughout the piece, and these terms are represented by different instrumentations and musical gestures in each section.

For example, in Section I, the Harmonics Number Series that controls the number of harmonics in the viola is accompanied by the Russian word for ‘discontinuous.’ This HNS is placed right below the Toccata Number Series in Sections I through III, and appears in the music that interrupts the toccata passages.

In contrast, three transitional and culminating passages in Section III, with 144 attacks each, each are labeled ‘continuous.’ These passages also have ascending and descending stair-shaped lines, and they are expressed with different timbral combinations respectively. The first transitional passage (mm. 201-209) in Section III appears in the bassoon alongside ‘toccata,’ ‘scale,’ and ‘continuous.’ The bassoon plays chromatic scales in a toccata rhythm and the viola plays a long sustained lyrical melody, both of which gradually ascend.

The second musical passage (mm. 233-251) that is marked ‘continuous’ in Section III is in the climactic part of Episode iii. In this passage, the viola plays the toccata rhythm with repetitive rhythmic and pitch materials, and the bassoon and piano play chromatic scales. Following Gubaidulina’s drawing, the viola gradually ascends toward the climax. The number of notes in the viola is 144.

In the last passage (mm. 274-278) designated ‘continuous’ in Section IV, the piano plays very fast descending clusters, a strong ending gesture of the climactic section. Episode iii of Section IV, labeled as a toccata passage in Gubaidulina’s draft, is described as ‘ripping’ and ‘continuous.’ Comparing each of the uses of ‘continuous’ in the musical passages of Section IV, it is clear that the toccata music is linked to the composer’s concept of continuity.

In Section V, along with the numbers 987 + 21, Gubaidulina uses text to indicate instrumental roles and characteristics. For example, the viola is described as ‘one line with no ripping.’ The bassoon is ‘discontinuous’ and the piano part is ‘toccata’ and ‘continuous.’ The word meaning ‘ripping’ seems to be associated with ‘discontinuity’ and, in Episode iii of Section IV, where continuous and discontinuous passages are represented together, the two contrasting words are juxtaposed.

Particular musical gestures are associated with specific words. That is, the harmonics passages are ‘discontinuous,’ and the toccata passages are usually ‘continuous.’ Even though Gubaidulina does not write these two words for every single passage, the overarching concept acts as an important organizing principle throughout the piece. Table 6 shows the two contrasting concepts associated with different musical gestures. Often, ‘continuity’ in one instrumental group is contrasted with ‘discontinuity’ in a different instrumental group. The toccata passages with 16th notes or 16th-note septuplets and the contrapuntal passages with lyrical melodies express ‘continuity,’ whereas the chordal material and long, sustained harmonics in the viola express ‘discontinuity.’

Table 6: Continuity versus discontinuity

Section		Material Type	Instrument	Continuity vs. Discontinuity
Section I (mm. 1-21)		Toccata	Piano	Continuity
		Harmonics	Viola	Discontinuity
Section II (mm. 22-45)		Toccata	Piano	Continuity
		Harmonics	Viola	Discontinuity
Section III (mm. 46-101)		Toccata	Piano	Continuity
		Harmonics	Viola	Discontinuity
Section IV (mm. 102-286)	i (mm. 102-131)	Toccata	Viola and Bassoon	Continuity
		Chordal	Piano	Discontinuity
	ii (mm. 131-209)	Contrapuntal	Viola and Bassoon	Continuity
		Chordal	Piano	Discontinuity
		Transitional toccata	Bassoon	Continuity
	iii (mm. 210-286)	Toccata	Viola, Bassoon, Piano	Continuity and Discontinuity
		Transitional	Viola	Continuity
		Transitional	Piano	Continuity
	Section V (mm. 287-323)		Toccata	Piano
Contrapuntal			Viola	Continuity
			Bassoon	Discontinuity

3.0 ANALYSIS

3.1 Three Primary Musical Materials

Three main types of musical materials are used in this highly diversified, sectional piece, which I classify as: toccata (x), chordal (y) and contrapuntal (z). The formal plan of *Quasi Hoquetus* is $AA^1 + \text{Coda}$, determined in part by the use of these three materials (see Table 7).

Musical material x is a toccata-like texture that features a disjunct or conjunct figure in 16^{th} notes or 16^{th} -note septuplets and usually appears as horizontal lines. This rhythmic feature defines x , and it occurs everywhere throughout the piece either as a single line, or more often, combined with triadic sets: [037], [047], [0347]. There is a variant form of x^1 , which is combined with [012], [014] and their extended sets.

The crucial element of y is simultaneity—multiple chords or dyads in a row that define the texture. It consists of a group of dyads, trichords, or tetrachords, comprised of [037], [047], [0347] and their subsets. Y^1 presents vertical simultaneities using other pitch-class sets than those for y , including [012] and [014]. Consequently, x and y share the similar pitch class sets but the texture defines them as x and y . When chordal materials occur in the toccata passage, this indicates that y is combining with x .

The z material is melodic and lyrical, primarily combined with or using sets [01234], [01245] and [02479]. Z usually occurs in a contrapuntal texture. It also mainly appears with conjunct lines and is often combined with various instrumental techniques such as *sul pont. tremolo*, trills and *flautando*, so that the z material adds timbral variety to the piece. Gubaidulina utilizes these three musical materials interactively; Table 7 shows how they are arranged.

Table 7: Arrangement of three musical materials

Inst.	Part	A			A ¹				CODA
	Section	I	II	III	IV				
	Episode				i	ii	iii	Codetta	
Violin & Bassoon		$y---(y^I)$	$y---(y^I)$	$y-y^I---z$	$x---(x^I)$	z	$x+y+y^I$	$y---(y^I)$	$y+z$
Piano		$x-----y$	$x-----y$	x	y	y	$x+y+y^I$	y^I	x^I

-Large, bold motifs, x , y , z and their variations have a high number of occurrences.

-Small motifs, x , y , z and their variations in the parenthesis occur infrequently.

-The box means that two instrumental groups are presented together in the music.

-Each motif is placed according to the order of its appearance.

Even though the three main motives are used throughout the piece, x occurs dominantly in the piano in Part A against y in the viola and bassoon, while y is presented mainly in the piano in Part A¹. Also, x is again placed in the piano in the Coda. Usually, x and y (and their variations) occur together in the contrasting instrumental groups while z occurs once in each part.

I will examine how each motive is used in each section in more detail. In Part A, y is usually assigned to the viola and the bassoon, and x is mainly in the piano. In Section I and Section II, y^1 appears shortly in the viola and the bassoon right before the explicit appearance of y in the piano. Y in the piano commonly acts as an ending gesture in these sections. In Sections I and II, x appears loudly in the piano and is foregrounded, compared to y in the viola, which is played softly in harmonics. Consequently, the toccata-like music of x is in the foreground at the beginning of Sections I and II, while the y material takes over this role at the end (see Figure 7).

Section I

The figure displays musical notation for Section I, illustrating the introduction of motives x , y , and y^1 . The notation is organized into three systems. The first system shows motive y in the viola and bassoon (pp) and motive x in the piano (pp). The second system shows motive y^1 in the viola and bassoon (p) and motive x in the piano (p). The third system shows motive y in the piano (p) and motive x in the piano (p). The notation includes various musical symbols such as notes, rests, and dynamic markings.

Figure 7: Introduction of x , y and y^1 in Section I and Section II

The figure displays three systems of musical notation for Section II. The top system features a piano (pp) with a melodic line labeled 'y' and a bass line with two boxed passages labeled 'X'. The middle system shows a piano (mp) with a complex texture labeled 'y1'. The bottom system features a piano (p) with two boxed passages labeled 'y'.

Figure 7: (Continued) Introduction of x , y and y' in Section I and Section II

In Section III, the instrumental arrangement of the x and y materials at the beginning is the same as in Sections I and II, but the occurrence of y' is three times greater in Section III than Section I. The increasing number of occurrences of y' is one instance of how the music is expanded in Part A as the section proceeds. In addition, instead of ending the third section with y material (as Sections I and II did), the z material first appears contrapuntally in the viola and the bassoon. Section III has the first appearance of z material in Part A, and z has a conjunct lyrical line in contrast to the disjunct toccata passages in the previous passage. In addition, this transitional passage of Section III hints at z having the same pitch material in Episode ii and the transition: the dominant pitch material of z in Section III, Section IV-Episode ii and the transition in Section IV is $[0\ 1\ 2\ 4\ 5]$ (see Figure 7.1).

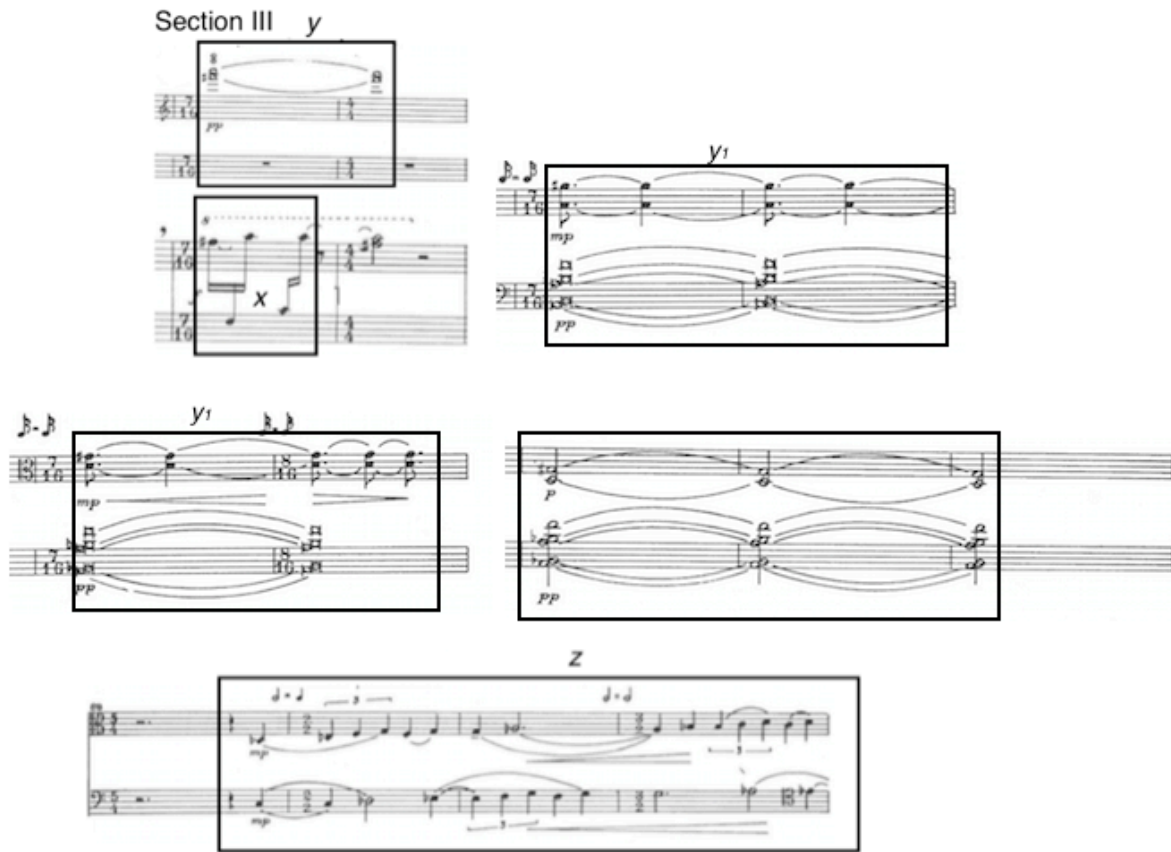


Figure 7.1: Introduction of x, y and z in Section III

The beginning of Part A¹, Episode i, starts with *x* in the viola and the bassoon (foreground), combined with *y* in the piano (background). This contrasts with Part A. Episode ii starts with *z* in both the viola and the bassoon. The reappearance of *y* here in the same way as in Episode i makes the piano sound as an accompaniment to the viola and bassoon. The continuous use of *y* in the piano unifies Episodes i and ii, while the *z* material in the viola and the bassoon, especially with *sul pont* in the viola, creates variety.

In the transition of Section IV, the viola plays *z* material (combined with the sequenced pitch materials of [0 1 2 4 5]) and the bassoon presents *x*¹ in a disjunct toccata texture. In this piece, the main musical ideas are primarily represented in the two contrasting instrumental groups of the piano against the

viola and the bassoon; however, here in the transition, *x* in the bassoon contrasts with *z* in the viola.

During this transition, *z* in the viola occurs continuously from Episode ii, and *x* in the bassoon suggests the recurrence of the toccata materials in Episode iii (see Figure 7.2).

In Episode iii, the toccata passages are presented in all the instruments, combining *x*, *y* and their variant forms. Of note, there is no *z* in Episode iii, even though all the other main musical materials are presented together here. Episode iii is the most developed and climactic, with the thickest harmonic texture, and the strongest dynamics in the piece. In the Codetta of Section IV, *y* and *y'* primarily appear in the viola and piano to provide registral contrast (see Figure 7.2).

Episode I



Episode II



Transition



The figure displays three musical excerpts from Section IV. The first excerpt, labeled 'Episode I', shows a woodwind staff with material 'X' and a string staff with material 'y'. The second excerpt, labeled 'Episode II', shows a woodwind staff with material 'Z' and a string staff with material 'y'. The third excerpt, labeled 'Transition', shows a viola staff with material 'Z' and a bassoon staff with material 'X'.

Figure 7.2: *x*, *y* and *z* in Section IV

Episode III

47

$X+y$

$X+X'$

y'

$X+y$

y'

$X+y$

y'

Codetta

y

y'

61

Solo

y'

y'

y

Figure 7.2: (Continued) x , y and z in Section IV

In the Coda, the x material is again placed in the piano, and y is combined with z in the viola and bassoon. The instrumental and material combinations here are similar to Section III, but y and z appear juxtaposed in Section III while they are combined together in the Coda (see Table 7). X' occurs first in the

piano with conjunct, repetitive toccata passages and, as the music proceeds, x appears in the piano gradually combined with [03]. Y and y' in the viola and z in the bassoon are usually combined with the chromatic collection. Particularly, the Coda is the only section where each material is presented (see Figure 7.3). C in the piano is continuously repeated throughout the Coda, and the harmonic and melodic materials in the viola and the bassoon move towards C by having the leading tones, F^\sharp and B , to G and C at the end, and these are the components of the key centricity in Section I (see Figure 7.4).

Section V

The figure displays a musical score for Section V, consisting of three staves: Viola, Bassoon, and Piano. The Viola staff contains material labeled 'y' and 'y'', the Bassoon staff contains material labeled 'z', and the Piano staff contains material labeled 'x' and 'x''. The score is divided into two systems, with a double bar line and a key signature change (from D major to C major) between them. The first system starts at measure 290 and the second at measure 292. The Piano part features a continuous, repetitive chromatic pattern throughout.

Figure 7.3: x , y and z in Section V

The musical score consists of six systems, each with a treble and bass staff. The first system (measures 316-317) features a treble staff with a melodic line and a bass staff with a rhythmic accompaniment. A bracket in the treble staff highlights the notes F# and G, labeled "Leading tone to G". A second bracket in the treble staff highlights the notes Bb and C, labeled "Leading tones to C". The second system (measures 318-319) continues the melodic and rhythmic patterns. The third system (measures 320-321) shows a similar structure. The fourth system (measures 322-323) features a treble staff with a melodic line and a bass staff with a rhythmic accompaniment. A bracket in the treble staff highlights the notes Bb and C, labeled "Leading tones to C". The fifth system (measures 324-325) continues the melodic and rhythmic patterns. The sixth system (measures 326-327) features a treble staff with a melodic line and a bass staff with a rhythmic accompaniment. A bracket in the treble staff highlights the notes Bb and C, labeled "Leading tones to C".

Figure 7.4 Leading tones, F[#] and B, to G and C in the Coda

3.2 Rhythm of Form

According to Gubaidulina's draft, *Quasi Hoquetus* has five sections and each section is delineated by different musical materials and a particular number series derived from the Fibonacci series. The formal structure of each section is organically related to the rhythmic, harmonic and melodic elements of the music. Among these, the rhythmic elements play a primary role in determining the formal plan; this is confirmed by Gubaidulina's original sketch, which shows only the number of attacks for each section and does not include harmonic and pitch materials. As discussed in the previous chapters, Gubaidulina began taking a deeper interest in rhythm in 1980 when she started to experiment with using number series in her music. Since Gubaidulina coined the term 'Rhythm of Form,' it is clear that she considers rhythm to be a very important element in her music. Therefore, in order to further examine the formal plan of this piece, I will describe how rhythmic elements are used to develop and determine sections within the piece, and I will also examine how the other primary musical elements are organically connected.

The formal structure of *Quasi Hoquetus* has several distinguishing characteristics. As seen in Chapter 3.1, three prominent musical materials are used throughout. The first three sections have an expository function, repeating and expanding the main musical textures and melodic/harmonic materials. Section IV also has the same materials as Sections I, II, and III, and they appear in the most developed forms. Section V has all three materials as well having the repetitive toccata passage in the piano presented as the concluding passage. Consequently, this piece has a form of AA¹ and Coda.

In Part A (mm. 1-101), the Toccata Number Series pattern in the piano and the Harmonics Number Series in the viola are similar. In Sections I to III of Part A, the pattern of identical HNS and similar TNS is developed further. The piano's toccata passages contrast with the viola's harmonics, which later combine with multiphonics in the bassoon, demonstrating how two instruments—viola and bassoon—can act as one instrumental group against the piano (see Table 8).

While the first three sections act as an exposition, Section IV is presented as a developmental and climactic section; it is the longest section and has the most varied use of the number series. According to Gubaidulina's draft, Section IV is sub-divided into three smaller episodes so that the total number of small sections is 7. The piano's toccata passages from Part A are developed and varied by all the instruments in Section IV. Section V has a very simple number series and acts as the concluding section (see Table 8).

Table 8: Formal structure and number series

Part	Section/ Episode		Measure	Total measures	Tocatta Number Series and Tocatta Number	Instrumental Group
A	I		mm. 1-21	21	$5+3+13+34=55$	Piano
	II		mm. 22-45	24	$5+8+21+55=89$	Piano
	III		mm. 46-101	56	$5+8+21+55=89$ $55+89=144$ Total=233 (89+144)	Piano
A ¹	IV	i	mm. 102-131	30	$8+13+21+13+34+55=144$	Viola and Bassoon
		ii	mm. 131-209	79	144	Bassoon
		iii	mm. 210-286	77	$5+8+21+55+144=233$	Viola and Bassoon
				Total=186 (30+79+77)	$8+13+13+21=55$	Piano
					13	Piano
					$13+5+2+1=21$	Piano
					Total=610 (144+144+233+55+13+21)	
	V		mm. 287-323	37	$987+21$	Piano

3.2.1 Part A (Section I through Section III)

The three sections of Part A are connected by the TNS, HNS and three main musical ideas. The way of using the TNS and HNS is similar, though not exact, but it is developed and elaborated as the music proceeds from Section I to Section III. Also, the musical materials in each section from Sections I to III are stated similarly, even though they are gradually developed by expanding the use of the y^1 material and by introducing new z material. These three sections commonly use the TNS and HNS to

determine the number of attacks for each instrument; they share the same HNS, '1-1-2-5,' and this number series controls the number of attacks by the viola. When the viola plays in the exposition, this HNS is represented by harmonics.

To study the use of the HNS, '1-1-2-5,' calculation of the duration of each note in the viola will first be conducted in order to examine the relationship between the duration of notes and how the sections are connected. The unit for measuring duration will be the 16th-note septuplet; seven 16th-notes are equivalent to one quarter-note in the score. Figure 8, Figure 8.1 and Figure 8.2 show the duration of each note for the viola and the total number of attacks. The numbers in the rectangle express each occurrence and the numbers in parentheses represent the duration of each note based on the 16th-note septuplet denominator (see Figure 8, Figure 8.1 and Figure 8.2).

7 ♯ 1" 7 ♯ J J = 7 ♯

Viola

Figure 8: Section I, Harmonics Number Series in viola and the duration of each note (mm. 1-18)

Viola

Figure 8.1: Section II, Harmonics Number Series in viola and the duration of each note (mm. 22-38)

Viola

Figure 8.2: Section III, Harmonics Number Series in viola and the duration of each note (mm. 48-62)

As shown in Figure 8, Figure 8.1 and Figure 8.2, each section begins with the same duration, 35. Similarly, in Sections I through III, the TNS also begins with 5 for controlling the number of attacks in common (see Table 8). Also, the durations of the second and third notes in Section I through Section III are again identical. Even though the duration of the second note in Section I is not the same as those in Section II and Section III, 33 (representing the duration of the second attack) is very close to 35 (see Table 9). 35(5x7) is most frequently used for the duration of attacks in the viola. Furthermore, 5 and 7 are important numbers for the overall formal plan, with 5 large sections and 7 small sections (including episodes).

Table 9 shows that each note of the HNS in Sections I to III has almost the same duration, except the notes corresponding to the last two numbers (2 and 5). The total durations of the notes linked to the first three numbers (1,1,2) are only slightly different between Sections I (159) and II (168), and they are identical for Sections II and III (168). Interestingly, the sum of the durations of the first three harmonics (corresponding to 1, 1, 2 of the HNS) is nearly identical to the duration of the last harmonics (5) in Section II, corresponding to the approximate 1-to-1 ratio³² between the sum of the notes' durations linked to the first three numbers (1, 1, 2) and the last number (5) in Sections I and III.

Even though Sections II and III use the same TNS for the toccata passages, and Section III is transposed a perfect 5th up from Section II, the durations of the last element (5) of the HNS in Section II and III are different (168 and 154). However, it feels like it is almost the same length because the basic measuring unit is so small, (one 16th note of the 16th-note septuplet).

³² 159:168 (Section I) and 168:154 (Section III)

Table 9: Comparison of the duration of specific notes in each section

Section Harmonics Number Series	I			II			III		
	Number of Duration	Total Duration Number		Number of Duration	Total Duration Number		Number of Duration	Total Duration Number	
1	35 (7x5)	68 (35+33)	159 (68+91)	35 (7x5)	70 (35+35)	168 (70+98)	35 (7x5)	70 (35+35)	168 (70+98)
1	33			35 (7x5)			35 (7x5)		
2	35 (7x5)	91 (35+56)		35 (7x5)	98 (35+63)		35 (7x5)	98 (35+63)	
	56			63			63		
5	35 (7x5)	168 (35+21+21+35+56)		28	168 (28+21+14+49+56)		28	154 (28+21+14+42+49)	
	21			21			21		
	21			14			14		
	35 (7x5)			49			42		
	56			56			49		

Along with the piano (TNS) and viola (HNS), the bassoon's multiphonics unify Sections I to III. Specifically, the number of multiphonics in the bassoon (always combined with the viola double-stops) increases as the sections proceed; Section I has one multiphonic, Section II has two, and Section III has three (see Figure 9).

The image displays a musical score for Viola and Bassoon, organized into three sections. Section I and Section II are at the top, and Section III is below them. Each section consists of two staves: Viola (top) and Bassoon (bottom). The time signature is 12/4. The key signature has one sharp (F#). The score is characterized by dense, complex chordal textures with numerous accidentals (sharps, flats, and naturals). Section I and II show similar melodic gestures at their ends, while Section III has a more varied structure. The Viola part often features long, sustained notes or chords, while the Bassoon part has more active, moving lines. The score is written in a formal, academic style with clear notation for notes, rests, and accidentals.

**Figure 9: Attacks of the bassoon combined with viola in Section I through Section III
(mm. 19-20, mm. 39-42, mm. 73-78)**

The musical gestures at the ends of Sections I and II are very similar. At the end of Section I, the piano plays thirteen chords in a chordal texture made up of second-inversion and root position triads in the right hand with an ascending pentatonic line in the left hand. Then, eight and thirteen chords with the same intervallic relationship occur at the end of Section II. The chords in both Sections I and II start in contrary motion and exchange registers. This cross shape in the melodic contour is written in Gubaidulina's draft, perhaps referencing the crucifixion. This chordal material at the end of Section I is expanded in Section II (see Figure 10).

The image displays a musical score for Piano, divided into two sections. Section I is marked with a bracket indicating '13 Attacks'. Section II is marked with a bracket indicating '8 Attacks' and another bracket indicating '13 Attacks'. A ratio '8:13 = 1.16 (GR)' is shown above the second bracket in Section II. The score is written in 3/2 time and features complex chordal material with various accidentals and articulation marks (e.g., 's' for staccato). The piano part is shown in both treble and bass staves.

Figure 10: Chordal material in Sections I and II (m. 21, mm. 43-45)

In sum, the Toccata Number Series controls the number of attacks in the piano toccata passages in Sections I through III. This same TNS evolves and expands in each subsequent section. As discussed above, the total number of attacks increases in each section of Part A according to the Fibonacci series derived TNS. Figure 11 shows this process in the first thirteen measures of Section I.

The image displays three systems of musical notation for a piano piece, labeled 'Section I'. Each system consists of a grand staff (treble and bass clefs). The first system has a bracket labeled '5' over the first five measures and a bracket labeled '3' over the last three measures, with a note '5:3= GR' above. The second system has a bracket labeled '13' over the first thirteen measures, with a note '8(5+3):13= GR' above. The third system has a bracket labeled '34' over the first thirty-four measures, with a note '21(8+13):34=GR' above. The time signature changes from 7/16 to 4/4 and back to 7/16. The word 'Piano' is written to the left of the first system.

Figure 11: Toccata Number Series in piano and the Golden ratio (mm. 1-13)

3.2.2 Part A¹ (Section IV)

Section IV is a developmental section that has a variety of number series, and evolving rhythmic, harmonic, and melodic materials from Part A. Section IV is sub-divided into three smaller episodes, according to Gubaidulina's draft. The climax of the piece, Episode iii, can be further sub-divided into three smaller phrases and a Codetta, with distinctive musical materials and a variety of number series. Here, Gubaidulina uses Fibonacci numbers (3, 5) and the number 7 in planning the formal structure at the macro-level as well as at the micro-level (see Figure 12). As seen in Figure 12, the formal structure of Section IV resembles the overall formal plan for *Quasi Hoquetus*.

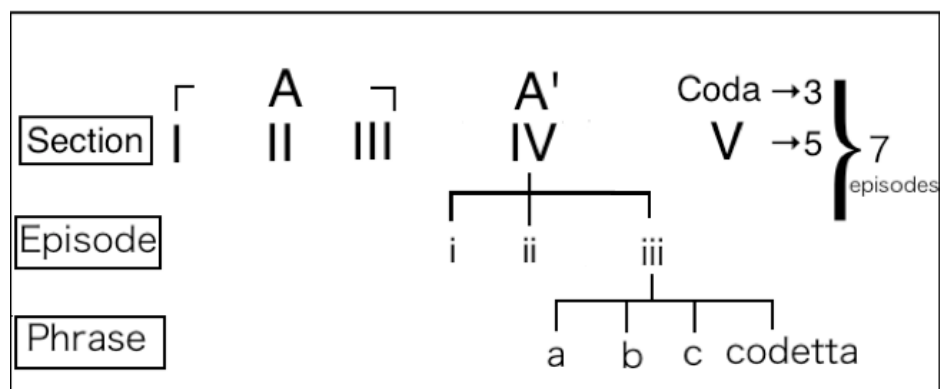


Figure 12: Formal plan

Table 10 below shows the formal plan of Section IV. The toccata material, x appears here primarily in the viola and bassoon against chordal material, y in the piano, whereas Part A had toccata material, x in the piano contrasting with y appearing harmonics in the viola and multiphonics in the bassoon. The toccata passages are designated by Gubaidulina's sketch either by the word 'toccata' or with a circled number. Also, the sum of measures in Episodes i, ii, and the transition ($30+70+9=109$) creates a GR³³ with Episode iii ($44+16+9=69$).

³³ $109 \div 1.6 = 68.125$

Table 10: Formal structure of Section IV

Episode	Phrase	Measure	Total number of measure	Musical materials	Instrumentation	Number series controlling the attacks	Text
i		mm. 102-131	30	$x---(x')$	Viola/Bassoon	8,13, 21 13, 34 55	
				y	Piano	4 6 6	
ii		mm. 131-200	70	z	Viola/Bassoon		Shimmering
				y	Piano	21	
Transition		mm. 201-209	9	z	Viola		Continuous
				x'	Bassoon	144	
iii	a	mm. 210-253	44	$x+y+y'$	Viola/Bassoon	5, 8, 21, 55	
					Viola	144	Continuous
					Piano		
	b	mm. 254-269	16	$x+y+y'$	Viola/Bassoon		
					Piano	8, 13, 13, 21	
	c	mm. 270-278	9	$x+y+y'$	Viola		
					Bassoon	2, 3, 3, 5, 8, 13	
Codetta		mm. 279-286	8	$y---(y')$	Viola/Bassoon	21	Harmonics
				y'	Piano	13	

The number series for controlling attacks mirrors the same process as the overall formal plan. The sum of numbers preceding the last in the series forms a GR with the last number. Figure 13 is based on the bold numbers in Table 10. Both the positive Golden ratio (the longer portion in relation to the short portion) and the negative Golden ratio (the short portion in relation to the longer portion) are found in Section IV.

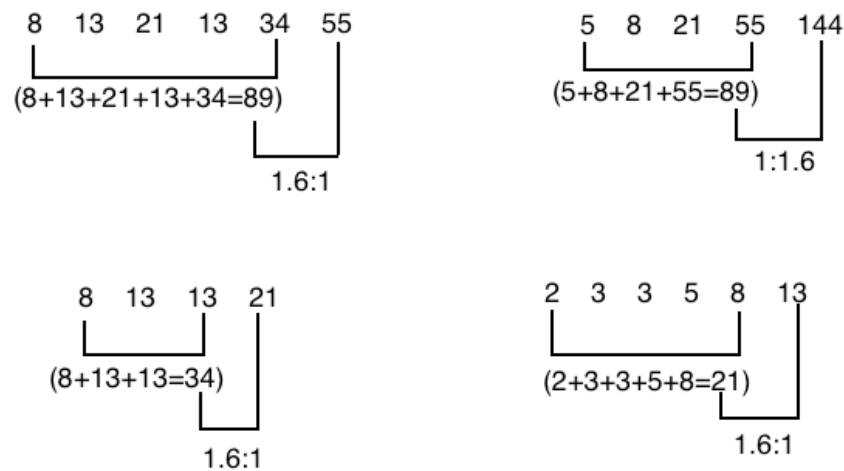


Figure 13: Golden ratios in Section IV

Episode i (mm. 102-131) starts with four chords in the piano that later combine with the toccata material in the viola and bassoon; the chordal material in Episode i functions to make the toccata harmony defined and consistent. The piano chords punctuate the stream of notes into segments of length dictated by the series, according to Gubaidulina's draft. For instance, three groups of TNs are used for the toccata passage in the viola and bassoon in Episode i: [8,13,34], [13,34] and [55]; all are derived from the Fibonacci series. Each TN group is demarcated by the number series, '4-6-6,' which dictates the number of notes of the piano (see Figure 6). Interestingly, the number series in the piano is not from the Fibonacci series; but the ratio between 4 and 6 is close to the GR and the sum of the first two numbers ($4+6=10$) also forms the GR with the number 6 that precedes it. As the Episode progresses, the number of quantities in each TN group gets smaller while the sum of the quantities in each TN group gets larger. Furthermore,

the total number of attacks for the piano in Episode i is 21, which is a member of the Fibonacci series, and this is not mentioned in Gubaidulina's draft.

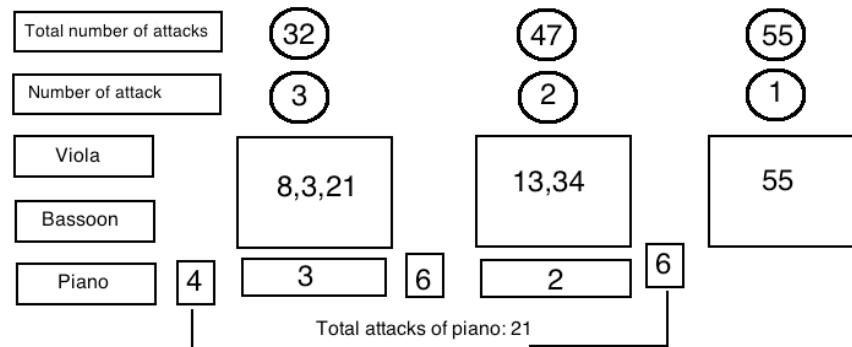


Figure 14: The three groups of TNs and the number series in the piano in Episode i of Section IV

In Episode ii (mm. 131-200), the viola presents chromatic melodic lines *sul ponticello*. The number of measures is noted in Gubaidulina's draft as 34, along with the word 'shimmering' (see Table 10). Gubaidulina uses 34 for defining the number of measures with *sul ponticello* while all other numbers in Section IV are used for controlling the number of attacks. Since the *ordinario* viola passage is 36 measures long, the ratio between the *sul ponticello* and *ordinario* passages is close to 1-to-1. Even though the piano presents chordal material as in Episode i, all 21 chords do not seem to be grouped into a numerical sequence. Each chord again has a role in asserting the harmonic content of the toccata music, as in Episode i.

The transition (mm. 201-209) from Episode ii to iii is indicated as 'harmonics,' in Gubaidulina's draft, and these 9 measures function as a durational axis of symmetry (70-9-69).

The image shows a musical score for the transition between Episode ii and Episode iii (mm. 201-209). The score is in 4/5 time and features three staves: Violin (V), Viola (V), and Piano (P). The Piano part is highlighted with a large black box. The score includes measures 201, 203, 205, 207, and 209. A box labeled "Total 144 attacks" is placed over the Piano part. The score ends with the tempo change "Poco più mosso" at measure 210.

Figure 15: Transition between Episode ii and Episode iii (mm. 201-209)

Phrase *a* of Episode iii (mm. 210-253) begins with toccata material in all three instruments, now with chromatic clusters in the piano. While the viola and bassoon have TNs [5, 8, 21, 55, 144] controlling the number of attacks, the piano does not follow any numerical series denoted in Gubaidulina's draft. Nonetheless, the numbers of grouped attacks in the piano are mainly 3, 5, and 8, all members of the Fibonacci series. In contrast to Episode ii, the viola mostly plays triple-stops, which function like the

piano's previous chordal material. Triple-stops are also significant because three is a member of the Fibonacci series and is associated symbolically with the trinity. According to Gubaidulina's draft, in the passage culminating in Phrase *b*, the viola has 144 repetitive notes, another Fibonacci number.

Phrase *b* (mm. 254-269) moves toward the climax in Phrase *c* (mm. 270-278), presenting all the instrumental techniques of the piece, such as *glissandi* and *tremolo* double-stops in viola, trills and flutter-tonguing in bassoon, and toccata material and clusters in piano. All the numbers of notes in the three instruments occur in groups of the Fibonacci series, as noted in Gubaidulina's draft. In Phrase *c* (mm. 270-278), only the bassoon goes up, and this with flutter-tonguing; its notes occur in groups of 2, 3, 5 and 8, which are members of the Fibonacci series.

The short Codetta (mm. 279-286) is followed by a long sequence of double-stops in the viola combined with sustained pitches in the bassoon. After this peaceful triadic passage, the piano repeats *sf* cluster chords in the low register to form a significant contrast to the previous passage. Each of the total number of attacks in these two passages forms a symmetrical axis. There is the number series—21, 13, 21, 13, 21—that dictates the number of notes in Phrase *c* and the Codetta (see Figure 16). When the number of attacks in the harmonics (double-stops) passage is used as an axis (the third number of the series, 21), symmetry is created with 13, 21, 13, while another symmetry is formed by 21, 13, 21 with the total number of attacks in the piano clusters (the fourth number of the series, 13).

268

58 Climactic passage

21 attacks

frull.

ff

3 3 5

ff

8

16

5

16

7

16

5

16

59

273

8

ff

13 attacks

ff

8

60 Codetta

semplce

278

pp

pp

21 attacks

282

alle Tasten tonlos herunterdrücken

61

286 Solo

13 attacks

Figure 16: Number series of 21,13,21,13,21 in Phrase c of Episode iii and the Codetta in Section IV (mm. 270-286)

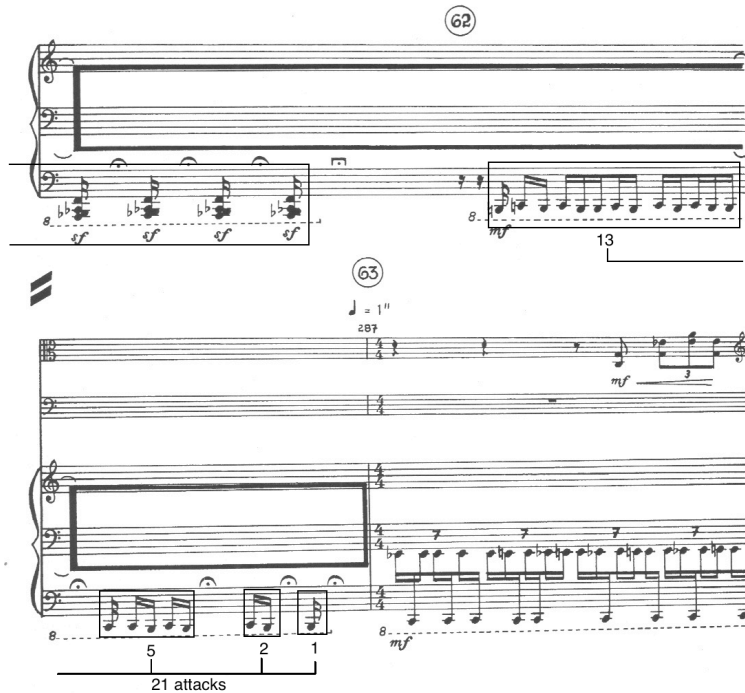


Figure 16: (Continued) Number series of 21,13,21,13,21 in the climactic passage of Episode iii and the Codetta in Section IV (mm. 270-286)

3.2.3 Coda (Section V)

Section V functions as a large-scale coda. This section has two contrasting musical textures. The viola and bassoon have lyrical melodic lines contrasting with toccata material in the low register of the piano with a septuplet repetitive figure moving towards C. The total number of piano notes, written in Gubaidulina's draft, is 987+21. Septuplets in the piano and triplets in the bassoon are the predominant subdivisions of the beat, clearly emphasizing the importance of the numbers 7 and 3. The pitch materials of this section of the piece will be explored more in Chapter 3.4.

3.3 Harmonic Materials

Quasi Hoquetus has chordal material that appears as punctuation and reinforces the harmony of particular passages. In this chapter, the overall harmonic plan will be examined with an emphasis on how the Golden ratio effects the placement of particular harmonies. Also, the distinguishing features of the chordal material in each section will be discussed.

3.3.1 Formal Structure and Symmetry of the Harmonic Languages

In this piece, major and minor triads are primarily used to contrast with chromatic materials. The first three sections of A, in particular, feature the distinctive sound of major and minor triads. Excluding the transitions, each section uses primarily one major/minor triad: in Section I, C major/minor; in Section II, G major/minor; in Section III, D major/minor. In addition, the key centricities in Sections IV and V appear as G and C. Consequently, a symmetry of the key centricity exists between the sections, and transposition occurs at the relationship of a perfect 5th. As seen in Figure 17, the larger harmony of Episode i and Episode ii in the developmental Section IV is ambiguous, even though major/minor triads are consistently used. However, the tonality of Episode iii is more clearly a G^b major leading-tone to G with the Codetta focused on G major/minor. In the Codetta, the pitch C is present in the piano's repetitive figure and the piece ends with a C minor triad. Consequently, the large-scale symmetrical harmony of *Quasi Hoquetus* is revealed (see Figure 17), following a circle-of-fifths cycle, which is analogous to much tonal music.

Section I Section II Section III Section IV Section V

Viola Viola Viola Piano Piano Viola Piano Piano

Episode I Episode II Transition Episode III Codetta

Transposition a perfect 5th up Frequent Transposition Transposition a perfect 5th down

CM/Cm GM/Gm DM/Dm AM D major chord (Axis) GbM GM/Gm Cm

Starting chord of the section IV

Figure 17: Symmetry of harmonic structure

As discussed above, the chordal material in the piano in Episodes i and ii in Section IV helps create the harmonic features of these particular passages. Transposition by ascending and descending perfect 5th (bracketed below) occurs frequently in Episode i and Episode ii (see Figure 18 and Figure 18.1).

Db Ab Eb

t7 t5 t7 t5 t5 t7 t5 t5

Figure 18: Reduction of harmonic progressions of the piano in Episode i in Section IV



Figure 18.1: Reduction of harmonic progressions of the piano in Episode ii in Section IV

Three main pitch-classes are identifiable in Episode i, even though there are frequent transpositions. They are D^b , A^b and E^b and their primacy is reinforced by the toccata passages in the viola and bassoon. The intervallic relationship here also outlines 4th/5th relationships (see Figure 19). A reductive linear analysis outlines the larger span of the harmonic plan. As seen in Figure 19, C and G are emphasized throughout the piece.

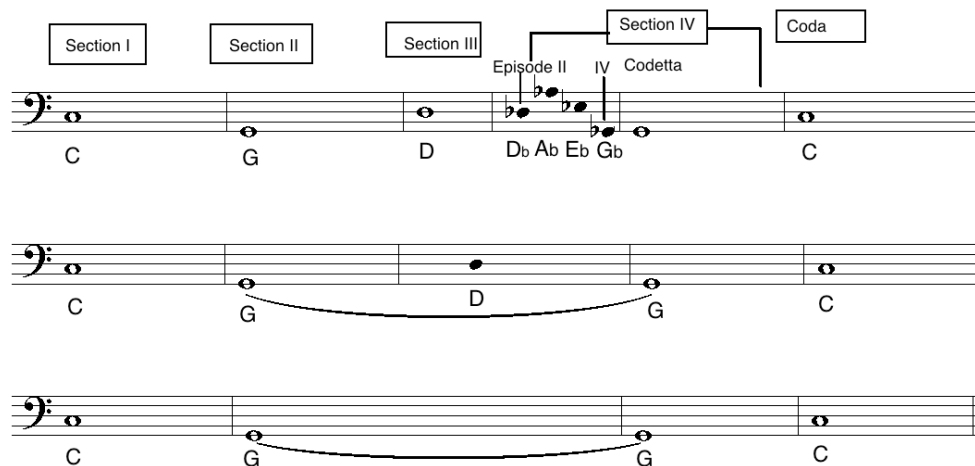


Figure 19: Reductive linear analysis of overall harmonic centrality

3.3.2 Golden ratio (GR)

In order to measure proportionality and search for the Golden ratio (GR) in each section, the quarter-note is taken as the basic beat. This chapter will focus on Part A (Section I, Section II and Section III), because the other sections do not appear to have harmonic events that line up with GRs.

Either the longer (positive) or shorter (negative) portion of the two parts in a Golden ratio can come first and there are interesting uses of harmonic events in Part A at both positive and negative GRs.

The most common occurrence is the positive GR and this is seen in several instances throughout Sections I through III. Section I has 72 beats total; the positive GR is 45 ($72 \div 1.6$) and the negative GR is 27. Section II has a total of 89 beats. The positive GR is 56^{34} and the negative GR is 34. In Section III, the GR is calculated in a different way. Compared with Section I and Section II, Section III has a transitional contrapuntal passage starting at m. 83. When calculating the positive GR of Section III, the total beats of the first passage excluding the transitional passage are used. Therefore, the total beats of Section III are 80, and the positive GR is placed on beat 50^{35} and the negative GR is placed on beat 30.

A major 7th dyad occurs on the positive GR in Sections I through III. This dyad differs from previous dyads. In Section I, though not exactly on the 45th beat, there is a G-F[#] dyad on the 44th beat of the viola part that has the highest pitch (F[#]) throughout Section I. On the 55th beat of Section II, there is a sustained D-C[#] dyad in m. 36 in the viola, though the attack of this dyad occurs early on beat 51. Finally, there is an A-G[#] dyad on the beat where the positive GR is placed (beat 51 in Section III), which occurs as the first instance of a major 7th in Section III (see Figure 20).

Looking at the negative GRs, the first appearance of a dyad referencing the minor triad of the prevailing pitch center appears in the viola in Sections I through III. In Section I, it occurs on beat 28 (the C-E^b dyad in m. 12), which contrasts with the previous C-E dyad (see Figure 19). As in Section I, the G-

³⁴ $89 \div 1.6 = 55.625$

³⁵ $80 \div 1.6 = 50$

B^b dyad is heard in the viola at the negative GR, where it sounds distinctive from the preceding dyads derived from G major triads (see Figure 20).

In Section III, the D-F dyad appears on beat 35, even though the GR is on beat 30. This error is larger than those in Sections I and II (see Figure 21). As seen in Figure 21, on or near the GRs in each section, dyads of a major 7th and a minor 3rd are heard. Interestingly, in comparing the sum of the measure numbers of Section III, the ratio between the toccata passages and the transitional passages is 1-to-1 (see Figure 21). Since this ratio is obtained from my own calculation, rather than from Gubaidulina's sketch, an error span between the place of the particular musical event and the GRs is found. Nevertheless, it is clear that on or near the GRs in Sections I to III of Part A, parallel musical events occur.

Section I

Section II

Figure 20: Harmonic Markers at GRs (mm. 1-20, mm.22-42, mm. 46-62)

Section III

Figure 20 (Continued) displays musical notation for Section III, featuring Viola and Bassoon parts. The score includes harmonic markers and Golden Ratios (GR) at specific measures.

- Viola Part:**
 - Measures 1-20: *pp* (pianissimo).
 - Measures 22-42: *pp* (pianissimo).
 - Measures 46-62: *pp* (pianissimo).
- Bassoon Part:**
 - Measures 1-20: *DM* (Dissonant Minor).
 - Measures 22-42: *DM* (Dissonant Minor).
 - Measures 46-62: *DM* (Dissonant Minor).
- Golden Ratios (GR):**
 - Negative GR on beat 35.
 - Positive GR on beat 50.

Figure 20: (Continued) Harmonic Markers at GRs (mm. 1-20, mm. 22-42, mm. 46-62)

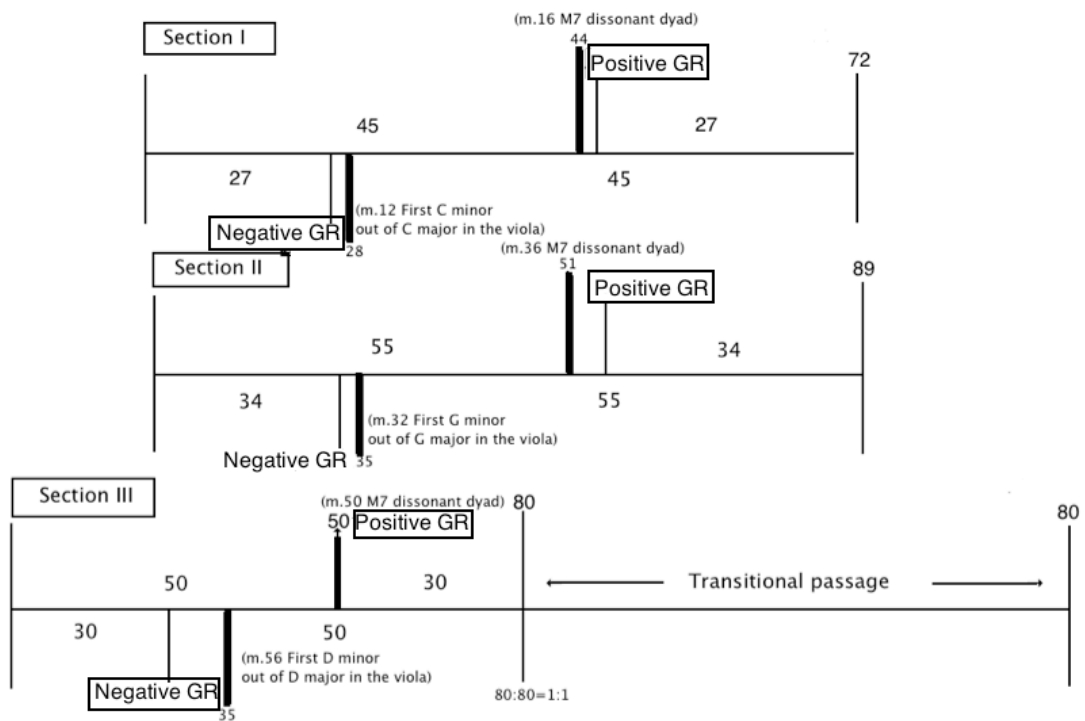


Figure 21: Golden Ratios in Section I through Section III

As seen in Figure 22 below, in Part A of the piece, the positive GR of each section has a particular dyad that has the role of suggesting the root of the primary pitch center of the next section by suggesting a leading-tone function. After the occurrence of these dyads at the GRs, the multiphonics of the bassoon are again combined with viola double-stops.

The figure displays a musical score reduction for Part A, organized into two systems. The top system shows Sections I, II, and III, while the bottom system shows Sections I, II, III, and IV. In the top system, the viola (Via.) and bassoon (Bsn.) parts are shown. Dyads on the GR (Grounding Root) for each section are circled. In the bottom system, the starting chords for each section are indicated: Section I (CM / Cm), Section II (GM / Gm), Section III (DM / Dm), and Section IV (AM EM AbM EbM). The starting chord of Section IV is specifically labeled as 'Starting chord of section IV'. The tonality of each section is indicated by a bracket at the bottom.

Figure 22: Reduction of the dyads in viola and multiphonics in bassoon of Part A, and leading-tones to the tonality of the next section

Moreover, as the harmonic structure displays symmetry between sections, the dyads on the GRs in Part A have a symmetrical relationship with the dyads in Sections IV and V. The dyads identical to those of the expository section appear again at important musical places. Even though they do not act as leading-tones any longer, the dyads have particular importance throughout Sections IV and V.

A-G[#] is placed in the highest register of the piano in Section IV with the strongest dynamic of *fff*. D-C[#] is represented as the last double-stop of the viola in the Codetta, and this produces a distinctive sound when compared to previous double-stops based on G major/minor triads. Also, G-F[#] is presented in Section V as climactic, *fff*, long, and doubled at the octave (see Figure 23).

The figure displays four musical excerpts from a score, each featuring Viola, Bassoon, and Piano staves. The excerpts are labeled with section numbers and measures.

- Section I: mm. 15-18**: The Viola part features a **GF# Dyad** (G4-F#4) and a **DC# Dyad** (D5-C#5). The piano is marked *pp*.
- Section II: mm. 35-38**: The Viola part features a **AG# Dyad** (A4-G#4). The piano is marked *pp*.
- Section III: mm. 59-62**: The Viola part features a **AG# Dyad** (A4-G#4). The piano is marked *pp*.
- Section IV: mm. 270-273**: The Viola part features a **AG# Dyad** (A4-G#4). The piano is marked *pp*.
- Section IV: mm. 282-284**: The Viola part features a **DC# Dyad** (D5-C#5). The piano is marked *pp*.

The score is written in 4/4 time. The Viola and Bassoon parts are in treble and bass clefs, respectively. The Piano part is in grand staff (treble and bass clefs). The key signature is one sharp (F#).

Figure 23: Symmetry of the structural dyads in Section I to Section V

Section V: mm. 316-318

The musical score for Section V (mm. 316-318) is presented in three staves: Viola (Vla.), Bassoon (Bsn.), and Piano (Pno.). The time signature is 4/4. The Viola part features a melodic line with a highlighted 'GF# Dyad' in a box, spanning measures 316 and 317. The Bassoon part provides harmonic support with chords and single notes. The Piano part features a continuous eighth-note pattern in the right hand and a bass line in the left hand. The score is marked with 'mf' (mezzo-forte) in measures 316 and 317.

Figure 23: (Continued) Symmetry of the structural dyads in Section I to Section V

3.4 Melodic Materials

The melodic material of *Quasi Hoquetus* predominantly has sets which can be classified as symmetrical or asymmetrical. I will focus on those pitch class sets in order to examine how Gubaidulina arranges the melodic materials in this work.

3.4.1 Use of Symmetrical Sets

One feature of *Quasi Hoquetus* is the use of the symmetrical sets [0 1 2 3], [0 3 4 7], [0 3 6 9], [0 2 4 6 8 10] and [0 1 3 4 5 6 7 9 10].

First, the set [0 1 2 3] is used consistently throughout the piece. Its subsets and extended forms appear both vertically and horizontally. Its subset [01] is placed on the GR in each section of Part A, and it helps create the piece's symmetrical form by the same use of dyads in Part A¹ and the Coda. In Part A¹, [0 1 2 3] is used much more frequently, combined with the lyrical melody in the viola in Episode ii and appearing as clusters in the piano in Episode iii (see Figure 24). Also, its expanded form, the total chromatic collection, is used in the bassoon throughout the Coda (see Figure 24 and Figure 24.1).

A second symmetrical set, [0 3 4 7], is also used very frequently. Its subsets, [0 3 7] and [0 4 7] are prominent triads throughout the piece and they impart a tonal sound without being functionally tonal. [0 3 4 7] and its subsets appear vertically and horizontally in trichordal and tetrachordal forms.

These two sets, [0 1 2 3] and [0 3 4 7], are the most frequently occurring sets and they often form a contrast between instrumental groups. In Part A, for example, [0 3 4 7] is primarily used for the toccata passages in the piano and the harmonics passages in the viola. This makes the [01] dyad of the viola on the GR stand out. [0 1 2 3] is used frequently in Episode ii of Section IV where it appears in the viola and the bassoon and contrasts with [0 3 4 7] in the piano. In Episode iii of Section IV, these instrumental roles are reversed (see Figure 24.1).

The figure displays a musical score for Episode ii in Section IV, spanning measures 132 to 143. The score is written for a single melodic line and a piano accompaniment. The tempo is marked *Più mosso*. The key signature has one sharp (F#). The score is divided into three systems, each with a circled measure number (28, 29, and 30) indicating the start of a new section.

System 1 (Measures 132-135):

- Measure 132: Melody starts with a *pp subito* dynamic. The piano accompaniment begins with a *pp subito* dynamic. The melodic line is marked with a *sul pont.* instruction and a *V* (Vivace) marking. The piano accompaniment has a *pp* marking.
- Measure 133: Melody contains the subset *[0123]*. Piano accompaniment contains the subset *[037]*.
- Measure 134: Melody contains the subset *[0123]*. Piano accompaniment contains the subset *[037]*.
- Measure 135: Melody contains the subset *[01]*. Piano accompaniment contains the subset *[037]*.

System 2 (Measures 136-139):

- Measure 136: Melody starts with a *pp subito* dynamic. The piano accompaniment begins with a *pp* dynamic. The melodic line is marked with a *sul pont.* instruction. The piano accompaniment has a *con Ped.* instruction.
- Measure 137: Melody contains the subset *[012]*. Piano accompaniment contains the subset *[01]*.
- Measure 138: Melody contains the subset *[01245]*. Piano accompaniment contains the subset *[01245]*.
- Measure 139: Melody contains the subset *[0123]*. Piano accompaniment contains the subset *[01245]*.

System 3 (Measures 140-143):

- Measure 140: Melody starts with a *pp* dynamic. The piano accompaniment begins with a *pp* dynamic. The melodic line is marked with a *sul pont.* instruction. The piano accompaniment has a *mp* marking.
- Measure 141: Melody contains the subset *[01]*. Piano accompaniment contains the subset *[01]*.
- Measure 142: Melody contains the subset *[01245]*. Piano accompaniment contains the subset *[01245]*.
- Measure 143: Melody contains the subset *[01245]*. Piano accompaniment contains the subset *[01245]*.

Figure 24: Use of [0 1 2 3] and its subsets and [0 3 7] in Episode ii in Section IV (mm. 132-143)

The figure displays two systems of musical notation. The top system, starting at measure 224, features a treble and bass staff with a piano accompaniment. A boxed section of the piano part is labeled [037] and contains a sequence of notes: G4, A4, B4, C5, B4, A4, G4. Another boxed section of the piano part is labeled [0347] and contains a sequence of notes: G4, A4, B4, C5, B4, A4, G4. The bottom system, starting at measure 228, features a treble and bass staff with a piano accompaniment. A boxed section of the piano part is labeled [0123] and contains a sequence of notes: G4, A4, B4, C5, B4, A4, G4. The score includes various musical notations such as notes, rests, and dynamic markings like *mf* and *f*.

Figure 24.1: Use of [0 1 2 3], [0 3 7] and [0 3 4 7] in Episode iii in Section IV (mm. 210-220)

In Section V, the viola double-stops [0 3 7] contrast with [0 1 2 3] in the bassoon. As the section develops, the viola has [01], along with the total chromatic collection in the bassoon and the repetitive toccata passage in the piano primarily with [0 1 2] and [0 1 4]. This harmonic tension is relieved at the end of the piece by the dyad [03] (see Figure 25 and Figure 25.1).

The figure displays three systems of musical notation for Section V (mm. 300-302), featuring Viola (Vla.), Bassoon (Bsn.), and Piano (Pno.) parts. The notation includes various harmonic annotations and dynamic markings.

- System 1 (mm. 300-301):**
 - Vla.:** Features a double-stop [037] in the first measure, marked with a triplet '3' and a slur. The second measure shows a full. (ff) dynamic.
 - Bsn.:** Features a full. (ff) dynamic in the first measure.
 - Pno.:** Features a repetitive toccata passage in the right hand, primarily with [0 1 2] and [0 1 4] harmonies.
- System 2 (mm. 301-302):**
 - Vla.:** Features a double-stop [037] in the first measure, marked with a triplet '3' and a slur. The second measure shows a full. (ff) dynamic.
 - Bsn.:** Features a full. (ff) dynamic in the first measure. The second measure shows a full. (ff) dynamic.
 - Pno.:** Features a repetitive toccata passage in the right hand, primarily with [0 1 2] and [0 1 4] harmonies.
- System 3 (mm. 302-303):**
 - Vla.:** Features a double-stop [037] in the first measure, marked with a triplet '3' and a slur. The second measure shows a full. (ff) dynamic.
 - Bsn.:** Features a full. (ff) dynamic in the first measure. The second measure shows a full. (ff) dynamic.
 - Pno.:** Features a repetitive toccata passage in the right hand, primarily with [0 1 2] and [0 1 4] harmonies.

Figure 25: Use of [0 1 2 3] and its subsets and [0 3 7] in Section V (mm. 300-302)

The image displays a musical score for Section V, measures 314 through 317. The score is organized into two systems. The first system, measures 314-315, is titled 'Total Chromatic Collection' and includes a circled measure number '(69)'. It features a treble and bass staff with intricate chromatic lines, including triplets and slurs, and a piano accompaniment. The second system, measures 316-317, is marked 'ffull.' and continues the chromatic exploration. The piano accompaniment in both systems consists of dense, rhythmic patterns in both hands.

Figure 25.1: Use of total chromatic collection in Section V (mm. 314-317)

[0 3 6 9], the diminished 7th chord, is primarily used in the viola in Section V, along with [0 3 4 7] and [0 1 2 3]. Even this set is stated vertically and horizontally throughout Section V, it does not appear in Sections I through IV. [0 3 4 7], [0 3 6 9] and the total chromatic collection are found in the horizontal melodic lines in the viola as well. Figure 26 below is a reduction of the top melodic lines of the viola.

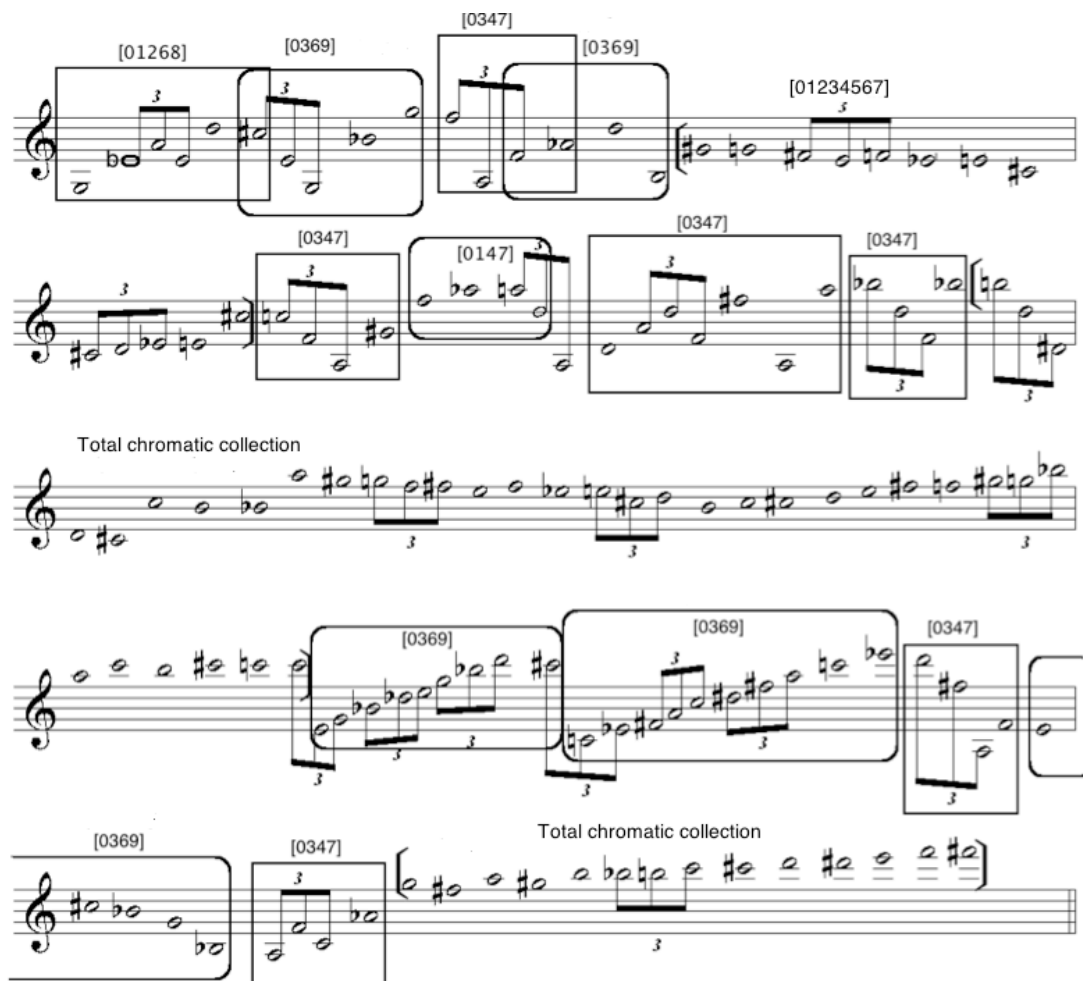


Figure 26: Use of [0 3 4 7], [0 3 6 9] and the total chromatic collection in Section V

Pitch-class sets [0 2 4 6 8 10] and [0 1 3 4 5 6 7 9 10], which refer to the whole-tone and the octatonic collections respectively, appear in Episode ii of Section IV. The chords in the piano in Episode ii of Section IV cover a wide range of registers (see Figure 27). However, when registers are collapsed to the same octave, it can be seen that the top melodic line of the piano creates stepwise ascending and descending lines (see Figure 27.1). Also, the components of this melodic line include alternating whole-tone and octatonic scales (see Figure 27.2). In this episode, the viola and bassoon present contrasting musical gestures to the piano; the viola and bassoon have continuous contrapuntal motion while the piano has a discontinuous chordal texture. In addition, the components of these two instrumental groups contrast because the viola and bassoon use the chromatic scale prominently throughout Episode ii, while

the linear motion of the triads in the piano features whole-tone and octatonic collections. The use of symmetrical collections (whole-tone, octatonic, chromatic) combines with the major/minor triads.

Figure 27: Transcription of piano chords in Episode ii of Section IV

Figure 27.1 Reduction of the chordal material of the piano

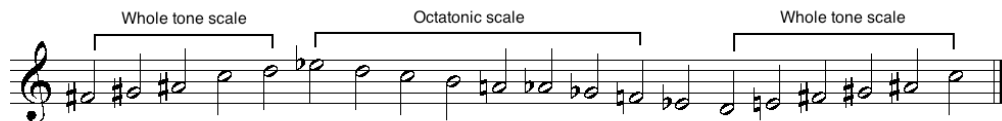


Figure 27.2 Reduction of the top melodic lines of the piano chords

3.4.2 Use of Asymmetrical Sets

There are three significant asymmetrical sets in the piece: [0 1 3 5 7], [0 1 2 4 5] and [0 2 4 7 9]. [0 1 3 5 7] and [0 1 2 4] appear first in the transitional phrase in Section III to foreshadow the canon between viola and bassoon. When they appear in the transitional passages in Section III, they sound distinctive compared to the previously dominant use of [0 3 4 7] (see Figure 28).

[0 1 2 4 5] is introduced in the chordal material of the piano in Sections I and II. As seen in Figure 28.1, the top melodic voice of the chordal material outlines [0 1 2 4 5]. Also, it occurs frequently in the canonic passages in Sections III and IV and, especially in Section IV, it is often formed horizontally and combined with [0 3 4 7]. While the canons are modified and extended in Section III, an exact canon is maintained between the viola and bassoon in Section IV. The pitch collections used for each phrase of the canonic material in Sections III and IV have 5 pitches ([0 1 3 5 7] and [0 1 2 4 5]), an important number throughout *Quasi Hoquetus* (see Figure 28.2 and Figure 28.3).

The image shows three staves: Viola, Bassoon, and Piano. The time signature is 3/4. The key signature has one sharp (F#). The Viola staff has a bracketed section labeled [01357] and another bracketed section labeled [0124]. The Bassoon staff has a bracketed section labeled [0124]. The Piano staff has a bracketed section labeled [0124]. The Viola and Bassoon parts are marked with a piano (p) dynamic. The Piano part is marked with a piano (p) dynamic. The Viola and Bassoon parts are in a canon.

Figure 28: Introduction of [0 1 3 5 7] and [0 1 2 4] in Section III (mm. 83-86)

Section I

Piano

Section II

Piano

Figure 28.1: [0 1 2 4 5] in chordal material of Section I and Section II (m. 21, mm. 43-44)

The musical score consists of two systems, each with two staves (treble and bass clef). The first system begins at measure 88, marked with a circled 15 and the tempo instruction *Poco più mosso*. The first staff has a circled 15 and a box labeled [01357] containing measures 88-90. The second staff has a box labeled [01357] containing measures 88-90. The second system begins at measure 91, marked with a circled 16. The first staff has a box labeled [01245] containing measures 91-93. The second staff has a box labeled [01245] containing measures 91-93. The third system begins at measure 94, marked with a circled 17. The first staff has a box labeled [01245] containing measures 94-96. The second staff has a box labeled [01245] containing measures 94-96. The fourth system begins at measure 97, marked with a circled 18. The first staff has a box labeled [01245] containing measures 97-99. The second staff has a box labeled [01245] containing measures 97-99. The fifth system begins at measure 100, marked with a circled 19. The first staff has a box labeled [01245] containing measures 100-101. The second staff has a box labeled [01245] containing measures 100-101.

Figure 28.2: [0 1 3 5 7] and [0 1 2 4 5] in Section III (mm. 88-100)

The figure displays four musical excerpts from Episode ii, illustrating the canonic passage between viola and bassoon. The excerpts are labeled with measure numbers and include various musical notations and annotations.

- m.132-143:** Features the tempo marking *Più mosso*. The score shows a viola part (V) and a bassoon part (B). Annotations include *sul pont.*, *ord.*, and *Exact canon*. The [0 1 2 4 5] set is highlighted in measures 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, and 142.
- m.168-171:** Shows a continuation of the canonic passage. Annotations include *sul pont.*, *ord.*, and *Exact canon*. The [0 1 2 4 5] set is highlighted in measures 168, 169, 170, and 171.
- m.180-183:** Continues the canonic passage. Annotations include *sul pont.*, *ord.*, and *Exact canon*. The [0 1 2 4 5] set is highlighted in measures 180, 181, 182, and 183.
- m.189-192:** Shows the final measures of the canonic passage. Annotations include *sul pont.*, *ord.*, and *Exact canon*. The [0 1 2 4 5] set is highlighted in measures 189, 190, 191, and 192.

Figure 28.3: [0 1 2 4 5] in the canonic passage between viola and bassoon in Episode ii
(mm. 132-143, mm. 168-171, mm. 180-183, mm. 189-192)

Another asymmetrical set, [0 2 4 7 9], recurs in critical places in the piece. In the ending passages of Sections I and II, it appears in the bass-line of the piano, and it is also combined with [0 3 7] and [0 4 7] harmonically in the piano. It appears integrated with [0 3 4 7] in Section IV. When the chordal passage of the piano is played, [0 2 4 7 9] is used to form its bass-line (see Figure 28.1 and Figure 29).

The image displays a musical score for four instruments: Viola, Bassoon, Piano, and Pno. (Piano). The score is divided into two systems, each containing staves for the respective instruments. The key signature is one flat (B-flat), and the time signature is 4/4. The score includes various musical notations such as notes, rests, and dynamic markings (*mp*, *f*). The Viola and Bassoon parts feature a series of notes in measures 109-123, with a bracket labeled [037] indicating a specific set of notes. The Piano part includes a series of chords in measures 109-123, with a bracket labeled [037] indicating a specific set of notes. The Pno. part includes a series of chords in measures 109-123, with a bracket labeled [02479] indicating a specific set of notes. The score is written in a standard musical notation style, with a clear layout and easy-to-read notation.

Figure 29: Use of [0 2 4 7 9] (mm. 109-123)

4.0 CONCLUSION: BEYOND THE ANALYSIS

“In general, there is a beautiful picture of rhythmic calculation, proportionality, mathematic exactness in the large-scale formal organization-over the absolute freedom of all other musical elements: melody, harmony, rhythm.”³⁶

I analyzed *Quasi Hoquetus* based on Gubaidulina’s pre-planned draft, which primarily shows the formal plan delineated by the number of notes in each section by using the Fibonacci series. Through my analysis, I have found that Gubaidulina composed this piece in a very systematic way. In this concluding chapter, I will summarize how Gubaidulina uses the two contrasting concepts of symmetries and asymmetries in the formal plan, and in the use of harmonic, rhythmic and melodic materials throughout the piece. I will also theorize about some ways Gubaidulina might have applied her musical intuition in this piece. Finally, I will discuss the further studies that are necessary for a complete understanding of Gubaidulina’s compositional process.

First, I would like to describe the use of asymmetrical elements. *Quasi Hoquetus* was composed primarily based on the Fibonacci series, which contains the asymmetrical Golden ratio. According to Gubaidulina’s draft, the Fibonacci series determines the total number of notes in the toccata passages for each section of this piece. The ratio of the total number of notes between the first two sections and the sum in the two adjacent sections form the Golden ratio. In addition, the Toccata Number Series and Toccata Numbers in each section are created using the same process for the overall formal plan; the adjacent numbers or sum of two adjacent numbers create GRs.

³⁶ Vera Lukomsky and Sofia Gubaidulina, “‘Hearing the Subconscious’: Interview with Sofia Gubaidulina”. *Tempo, New Series*, No. 209 (Jul., 1999), 27.

Some numbers that determine the attacks in Section IV form the Golden ratio, even though they are not the members of the Fibonacci series.

The Golden ratio acts as an important role in the harmonic plan as well. In Sections I through III, the specific dyads of major 7ths and minor 3rds are placed in positive and negative Golden ratios. These important dyads recur in Section IV and Section V.

For planning the melodic materials in this piece, asymmetry is also present through the use of the asymmetrical sets: [0 1 3 5 7], [0 1 2 4 5] and [0 2 4 7 9]. In particular, [0 1 2 4 5] is the most frequently used asymmetrical set and its role is to unify the piece by its repetitive use throughout the piece.

Symmetrical and asymmetrical constructs are juxtaposed in various ways throughout the piece. Gubaidulina does not use these two contrasting concepts in a confrontational way. For example, in the overall formal plan, the symmetrical 1-to-1 ratio is found between the sum of TNS of Sections I through IV and the TN in Section V, even though the Golden ratio is primarily used for structuring the formal plan.

In addition, in Section III, Gubaidulina creates a 1-to-1 ratio in planning the duration of the toccata passages and the lyrical, transitional passages when calculating the total number of beats. This shows that Gubaidulina might endow an important meaning to the lyrical passages even though only the number of notes for the toccata passages is written in her draft. In fact, the lyrical passage implies the main melodic materials that are also utilized in Section IV. By using the same rhythmic calculation of comparing the duration of notes for the Harmonics Number Series (1-1-2-5) in Sections I through III, the total number of beats for the first three attacks (1-1-2) creates a near 1-to-1 ratio with the total number of beats for the last attacks (5) in each Section—159:168 in Section I, 168:168 in Section II, 168:154 in Section III. Even though the

Harmonics Number Series for the harmonics in the viola is designed based on the Golden ratio, the duration of attacks shows a symmetrical 1-to-1 ratio.

Gubaidulina uses a symmetrical ratio in planning the number of measures in sections. In Episode ii, the number of measures (34) for the *sul ponticello* passage in the viola forms a near 1-to-1 ratio with the number of measures (36) for the *ordinario* passage. Also, when comparing the number of measures of Episode ii (70) and Episode iii (69), a close 1-to-1 ratio is formed, with the transition (9) in between acting as an axis (70-9-69). In the use of the Fibonacci series, symmetry is also found. In the Codetta of Section IV, the number series, 21-13-21-13-21, is used to determine the number of attacks. When examining this number series, it can be seen that two symmetrical number series are combined: 21-13-21 and 21-13-21.

Furthermore, Gubaidulina creates a symmetrical form of key centricity, which is formed by transposition of perfect 4ths and 5ths, analogous to traditional tonal progressions. An axis of key centricity is formed: D in Section III, G in Sections II and IV and C in Sections I and V. The placement of major 7th dyads on the positive GRs in Part A also helps create a symmetrical relationship between sections. As discussed above, the major 7th dyads, identical to those of the expository section, occur again at important musical places in Sections IV and V.

By using both symmetrical and asymmetrical sets as the main melodic materials for this piece, Gubaidulina combines those two contrasting concepts in planning the melodic language. Specifically, [0 3 4 7] and [0 1 2 3] are the most dominantly used sets throughout the piece. They occur frequently together, creating a contrasting sound because [0 3 4 7] contains major/minor triads and [0 1 2 3] is chromatic. Generally, symmetry is used for the overall harmonic structure, while asymmetry is used for the overall formal plan. Nonetheless, in all of the musical elements in *Quasi Hoquetus*, symmetries and asymmetries appear in systematic ways throughout the piece.

Next, Gubaidulina's musical intuition is discussed, in regards to certain formal, harmonic, rhythmic and melodic components in the piece. She does not always seem to follow what is written in her pre-planned draft or any number series or the Golden ratio.

There are two contrasting passages, toccata and lyrical, in Section III, that are of equal duration. But only the number series for the attacks in the toccata passages is written in Gubaidulina's draft, without any indication for the lyrical passage. I believe that the latter is composed much more intuitively because, when comparing the use of [0 1 2 4 5] in Section III and in Episode ii in Section IV, it varies much more freely in Section III than with the strict canon in Section IV. In addition, other pitch class sets, such as [0 1 2 4 6], [0 1 3 4 6] and [0 1 3 6 9], are found, which are only presented in Section III.

As discussed above in Chapter 3.3, the major 7th and minor 3rd dyads in Sections I through III occur near, not right on, the positive and negative Golden ratios. In Section III, the error span between the GRs and the placements for the musical events gets larger than in Sections I and II. This could indicate Gubaidulina's choice of intuition over systematic compositional process.

In the use of numbers for the toccata passages, there is a difference between Gubaidulina's draft and the actual music. In her draft, she circled all the numbers when she indicates the number of notes in the toccata passages. However, from among all of them, only the circled number 13 in Section IV of her draft seems to represent the thirteen repetitive clusters of the piano in the Codetta in the music. I assume that Gubaidulina also decides to use the piano clusters based on her intuition rather than following her pre-planned draft. If not, the meaning of the circled numbers should be studied more.

The concept that deserves further study is the idea of continuity and discontinuity, also articulated in Gubaidulina's draft. This seems to be a dominant motif for her in creating the

harmonic, melodic, and rhythmic materials of the piece, and one that is very much linked to symmetry and asymmetry. The contrasting roles between the two instrumental groups (piano versus viola and bassoon) are related to this concept. Gubaidulina usually refers to ‘continuity’ for the toccata passages and the melodic linear material. In contrast, she uses ‘discontinuity’ for the viola harmonics and for the chordal gestures of the piano. However, these long and resonant harmonics can certainly be heard as a continuous texture, while the disjunct and fast toccata passages seem more discontinuous. It is not clear if Gubaidulina determines the labels of ‘continuity’ and ‘discontinuity’ based on her listening experience or on other factors.³⁷

There are a lot of numbers and notations on Gubaidulina’s one-page pre-planned draft that I was unable to find in the music. For example, as seen in Figure 30, Gubaidulina wrote checkmarks (v) over the Fibonacci series that is at the top of the draft page. What the checkmarks mean warrants further examination.

				V	VV	VV	VV	V	VV		V	V			
1	1	2	3	5	8	13	21	34	55	89	144	233	377	610	987

Figure 30: The Fibonacci series written on Gubaidulina’s draft with checkmarks

Lastly, I believe that further study about the perceptibility of her formal plan based on the Fibonacci series is also needed. According to Gubaidulina’s draft, the piece has five sections and Section IV has three smaller episodes within it. From my listening experience, the first three sections act as the expository part, Section IV is developmental, and Section V is a Coda. The

³⁷ Joseph T Williams. “Discontinuous continuity?: Structural analysis of Sofia Gubaidulina’s string quartets.” Diss., University of Cincinnati, 2007.

question of how the formal divisions, based on rhythmic calculations, affect the listening experience could be studied further.

As I state in the introduction, this piece shows Gubaidulina's unique musical language based on her intuition and systematic thinking. In other words, the use of the Fibonacci series and Golden ratio in the formal and rhythmic plan is incorporated systematically while intuitive musical ideas can be found throughout the harmony, rhythm and melody. Through this analysis of *Quasi Hoquetus*, I have also found that Gubaidulina creates a beautiful balance between symmetry and asymmetry in all the musical elements of the piece, just as the Golden Section Ratio that she considers to be nature's highest law reflects a balance of symmetry and asymmetry. Finally, on the border between tonal and atonal, romantic and experimental, multiplicity and unity, she reflects her unique compositional voice.

BIBLIOGRAPHY

- Cheng, Wei. *A Conductor's Guide to Sofia Gubaidulina's "St. John Passion."* University of Cincinnati, 2006.
- Cojbasic, Ivana. *Content and musical language in the Piano sonata of Sofia Gubaidulina: and three recitals with works by Bach, Beethoven, Mozart, Chopin, Schumann, Debussy, and Rachmaninov.* Diss. University of North Texas, 1998.
- Forte, Allen. *The Structure of Atonal Music.* (Yale University Press, 1973).
- Hamer, Janice, and Sofija A. Gubajdulina. *Sofia Gubaidulina's Compositional Strategies in the String Trio (1988) and Other Works.* 1994.
- Howat, Roy. *Debussy in Proportion: a Musical Analysis* (Cambridge University Press, 1986).
- Kise, Lyudmila. *Part I Sofia Gubaidulina's approach to pitch centricity in.* Diss. University of Utah, 2011.
- Kramer, Jonathan. "The Fibonacci series in twentieth-century music." *Journal of Music Theory* (1973): 110-148.
- Lee, Young-Mi. *Musical contents and symbolic interpretation in Sofia Gubaidulina's "Two Paths: A Dedication to Mary and Martha."* Diss. The Ohio State University, 2007.
- Lendvai, Ernő, and Alan Bush. *Béla Bartók: an analysis of his music.* (London: Kahn & Averill, 1971).
- Lukomsky, Vera, and Sofia Gubaidulina. "Sofia Gubaidulina: 'My Desire Is Always to Rebel, to Swim against the Stream!'" *Perspectives of New Music* (1998): 5-41.
- Lukomsky, Vera, and Sofia Gubaidulina. "'Hearing the Subconscious': Interview with Sofia Gubaidulina." *Tempo* (1999): 27-31.
- Lukomsky, Vera, and Sofia Gubaidulina. "'The Eucharist in My Fantasy': Interview with Sofia Gubaidulina." *Tempo* (1998): 29-35.
- McBurney, Gerard. "Encountering Gubaydulina." *The Musical Times* 129.1741 (1988): 120-125.
- Milne, Jennifer Denise. *The rhythm of form: Compositional processes in the music of Sofia Gubaidulina.* University of Washington, 2007.
- Neary, Fay Damaris. *Symbolic structure in the music of Gubaidulina.* Diss. Ohio State University, 1999.
- Polin, Claire. "The Composer as Seer, but not Prophet." *Tempo (New Series)* 3.190 (1994): 13-18.

Schwartz, Elliott, Barney Childs, and Jim Fox. *Contemporary composers on contemporary music*. Da Capo Press, 1998.

Sitsky, Larry. *Music of the twentieth-century avant-garde: a biocritical sourcebook*. Greenwood Reference C, 2002.

Tsenova, Valeria. "Magic numbers in the music of Sofia Gubaidulina." *Muzikologija* 2 (2002): 253-261.

Wilson, Jacqueline May. *The Concerto for Bassoon and Low Strings by Sofia Gubaidulina: a performance guide*. Diss. University of Iowa. 2011.

Williams, Joseph T. *Discontinuous continuity?: Structural analysis of Sofia Gubaidulina's string quartets*. Diss. University of Cincinnati, 2007.

Ode to Broken Things
for Clarinet, Cello and Piano

Sookyung Sul

Ode to Broken Things

I

Sookyung Sul

The musical score for 'The Great Wall' by John Williams is presented for three instruments: Clarinet in Bb, Cello, and Piano. The score is divided into four measures, with a key signature change from 3/4 to 2/4 and back to 3/4. The tempo is marked as 80. The Clarinet in Bb part begins with a forte (sfz) dynamic, followed by a piano (p) dynamic. The Cello part starts with a pizzicato (pizz.) dynamic, then moves to arco. The Piano part features a forte (fff) dynamic, followed by a piano (p) dynamic. The score includes various musical notations such as triplets, slurs, and dynamic markings.

6
B♭ Cl. *f* *p* 3 5

6
Vlc. *f* *p* 5

6
Pno. *f* *ff* *mf* *p* 5 3 8va Lea

14

B♭ Cl. *mf* *f* *ff*

Vlc. *mf* *f* *ff*

Pno. *f*

Tea

80

19

B \flat Cl.

Vlc.

Pno.

f

mf

21

B \flat Cl.

Vlc.

Pno.

p *f* *p* *f* *ff*

p *ff*

f *p* *f* *p*

Rea *

24

B \flat Cl.

Vlc.

Pno.

mf

pizz. *p*

37

B \flat Cl. *ff* *pp* *f* *pp* *f* *pp*

Vlc. *mf* *f* *sf* *pp* *ff subp*

Pno. *f* *ff* *pp* *mf*

41

B \flat Cl. *f* *pp* *f* *pp* *f* *pp*

Vlc. *ff subp* *ff subp* *ff subp* *ff subp* *ff subp*

Pno. *pp* *mf* *pp* *mf*

45

B \flat Cl. *f* *pp* *f* *pp* *f* *pp*

Vlc. *ff subp* *ff subp* *ff subp* *ff subp* *ff subp*

Pno. *pp* *mf*

6
50

B \flat Cl.

pp *f* *p* *f*

Vlc.

ff subp *ff subp* *ff subp* *ff*

Pno.

pp *mf*

8^{va}

D
Poco Meno Mosso
♩ = 75

55

B \flat Cl.

ff

Vlc.

fff *ff*

Pno.

f

58

B \flat Cl.

Vlc.

Pno.

The first system of the musical score for 'The Swan' from 'The Nutcracker' features three staves: B♭ Clarinet (Cl.), Violoncello (Vlc.), and Piano (Pno.). The B♭ Cl. staff begins with a treble clef and a key signature of one flat (B♭). The Vlc. staff uses a bass clef. The Pno. staff is a grand staff with both treble and bass clefs. The music starts at measure 76. The B♭ Cl. part has dynamic markings *p*, *mf*, *f*, *mp*, *mf*, *p*, and *mp*. The Vlc. part has *p*, *mf*, *f*, and *mp*. The Pno. part has *pp*. There are slurs and phrasing marks throughout. A '8va' marking with a dashed line indicates an octave shift for the Pno. right hand. The system ends with a repeat sign.

86

[illegible]

accel.
 98 *fff* *mf*
 B♭ Cl.
 98 *ff* *fff* *p* *f*
 Vlc.
 98 *ff* *sfz* *p* *ff*
 Pno.
 100 *p* *f* *p < f* *mp* *p* *f*
 B♭ Cl.
 100 *pp* *f* *pp < f* *mp* *p* *f*
 Vlc.
 103 *p* *f* *p* *f* *p < f*
 B♭ Cl.
 103 *p* *f* *p* *f* *p*
 Vlc.
 103 *p* *f* *p* *f* *p*
 Pno.

The musical score is for measures 98 through 103. It features three staves: B♭ Clarinet (B♭ Cl.), Violin (Vlc.), and Piano (Pno.). The tempo is marked 'Piu Mosso' with a quarter note equal to 80 beats per minute. The key signature has one flat (Bb). The score includes various musical notations such as triplets, sixths, and dynamic markings (ff, mf, p, f, pp, sfz, mp). The B♭ Clarinet part starts at measure 98 with an 'accel.' marking and features a triplet of eighth notes. The Violin part also starts at measure 98 and features a triplet of eighth notes. The Piano part starts at measure 98 and features a triplet of eighth notes. The B♭ Clarinet part continues through measure 100 and features a triplet of eighth notes. The Violin part continues through measure 100 and features a triplet of eighth notes. The Piano part continues through measure 100 and features a triplet of eighth notes. The B♭ Clarinet part continues through measure 103 and features a triplet of eighth notes. The Violin part continues through measure 103 and features a triplet of eighth notes. The Piano part continues through measure 103 and features a triplet of eighth notes.

107

B♭ Cl.

p *f* *p* *f* *p* *f*

Vlc.

107

Pno.

f *p* *f* *p* *f* *p* *f*

110

B♭ Cl.

p *f* *p* *f* *p* *f* *p*

Vlc.

110

Pno.

p *f* *p* *f* *p* *f* *p*

H

113

B♭ Cl.

f *p* *f* *p* *f* *p* *f*

Vlc.

113

p *f* *p* *p* *f* *p*

Pno.

f *sf* *p* *f* *p* *f* *p*

12

B \flat Cl. 116 *p* *f* *p* *f* *p* *f*

Vlc. 116 *f* *p* *f* *p*

Pno. 116 *f* *p* *f* *p*

B \flat Cl. 119 *f* *p* *f* *p* *f* *p*

Vlc. 119 *f* *p* *f* *p*

Pno. 119 *f* *p* *f* *p* *f* *p*

B \flat Cl. 122 *f* *ff* *fff* *I*

Vlc. 122 *ff* *fff*

Pno. 122 *ff* *fff*

126

B \flat Cl.

Vlc.

Pno.

128

B \flat Cl.

Vlc.

Pno.

131

B \flat Cl.

Vlc.

Pno.

Sookyung Sul

♩ = 45

14 *sub tone* 3 *ppp* *pp* *pp* *ppp*

VC 14 3 *p* *pp* *pizz.* *p*

Pno. 14 *Muted with blue tack* *p* *ff* *p*

8va - - - - - 3

8va - - - - - 3

20

B♭ Cl.

VC

Pno.

ffz *p*

ff *p*

ffz *ffz*

8^{va}

8^{vb}

24

B♭ Cl.

VC

Pno.

27

B♭ Cl.

VC

Pno.

Blowing air into the instrument
with key clicks

f *ppp*

sub tone

ffz *p*

ff *subito p*

8^{va}

8^{vb}

30

B♭ Cl. *mp* *p* *pp* *mp*

VC *ff* *sfz* *p*

Pno. *ff* *p*

34

B♭ Cl. *p* *f* *p* *ord.* *C* *Piu Mosso* *♩ = 60*

VC *p* *arco* *Sul pont.* *sfz* *ppp*

Pno. *ff* *fff* *pp*

37

B♭ Cl. *sfz* *ppp*

VC *sfz* *ppp*

Pno. *8va* *8vb*

41

B♭ Cl.

sfp *sfp* *ppp* *sfp*

VC

3 6

Pno.

8^{va} 8^{vb}

44

B♭ Cl.

sfp *ppp* *sfp* *ppp*

VC

7 *f* *p* *f* *p* *f*

Pno.

8^{va} 8^{vb}

48

B♭ Cl.

sfp *sfp* *sfp* *ppp* *sfp* *ppp* *sfp*

VC

3 *p* 3

Pno.

52

B \flat Cl.

VC

Pno.

sfp \triangleleft *ppp* *sfz* \triangleleft *p*

f *p*

D

56

B \flat Cl.

VC

Pno.

f *subp* *pp* *f* *ff* *p* ord.

60

B \flat Cl.

VC

Pno.

p *sfp* \triangleleft *p*

f *p*

ff *pp*

6

64

B♭ Cl.

VC

Pno.

sfz *ff pp*

3 3 5

E

67

B♭ Cl.

VC

Pno.

p *mp*

mf *p* *mf* *p*

3 3 3 3

8va

67

3 3

fffz

71

B♭ Cl.

VC

Pno.

mp *pp* *mf*

3 3 3 3 3 3

8va

71

ff *p* *fffz* *fffz* *fffz* *fffz*

Musical score for B♭ Clarinet (B♭ Cl.), Violoncello (VC), and Piano (Pno.). The score is divided into three systems, each starting at measure 75, 80, and 87 respectively. The key signature is one flat (B♭).

System 1 (Measures 75-79):

- B♭ Cl.:** Features a melodic line with triplets and a crescendo leading to a *pp* (pianissimo) dynamic.
- VC:** Features a melodic line with triplets and a crescendo leading to a *pp* dynamic.
- Pno.:** Features a complex texture with chords and arpeggios. Dynamics include *fffz* (fortissimoforzando), *ffz*, *p*, and *pp*. A *8va* (octave) marking is present.

System 2 (Measures 80-86):

- B♭ Cl.:** Features a melodic line with a *ff* (fortissimo) dynamic, followed by a *ppp* (pianissimissimo) section, and then a *p* (piano) section. A *ff* dynamic appears again towards the end.
- VC:** Features a melodic line with a *ff* dynamic, followed by a *ppp* section, and then a *p* section. A *pizz.* (pizzicato) marking is present.
- Pno.:** Features a complex texture with chords and arpeggios. Dynamics include *ff*, *subp* (subpiano), *ppp*, *ff*, and *ppp*. A *8va* marking is present. A *Rea* (Rehearsal) marking is present.

System 3 (Measures 87-91):

- B♭ Cl.:** Features a melodic line with a *ff* dynamic, followed by a *p* section.
- VC:** Features a melodic line with a *ffz* dynamic, followed by a *pp* section.
- Pno.:** Features a complex texture with chords and arpeggios. Dynamics include *ff* and *pp*. A *8va* marking is present. A *Rea* marking is present.

This musical score is for measures 111 through 122 of a piece. It features three staves: B♭ Clarinet (B♭ Cl.), Violoncello (VC), and Piano (Pno.).

- Measure 111:** The B♭ Cl. staff begins with a treble clef and a key signature of one flat. It contains a melodic line with triplets and a dynamic marking of *f* followed by *p*. The VC staff has a bass clef and contains a melodic line with triplets. The Pno. staff has a grand staff (treble and bass clefs) and contains a complex accompaniment with triplets and a dynamic marking of *f* followed by *p*. A dashed line labeled "8va" indicates an octave shift.
- Measure 117:** The B♭ Cl. staff continues the melodic line. The VC staff has a melodic line with triplets and a dynamic marking of *f* followed by *p*. The Pno. staff has a complex accompaniment with triplets and a dynamic marking of *f* followed by *p*. A dashed line labeled "8va" indicates an octave shift.
- Measure 122:** The B♭ Cl. staff continues the melodic line. The VC staff has a melodic line with triplets and a dynamic marking of *f* followed by *p*. The Pno. staff has a complex accompaniment with triplets and a dynamic marking of *f* followed by *p*. A dashed line labeled "8va" indicates an octave shift.

129

B♭ Cl.

VC

Pno.

p *fff* *pp*

p *fff* *pp*

ff *p* *ff*

p

[illegible]

146

B♭ Cl. *p* *fff* *p* *ff* *subp* *ff*

VC *p* *fff* *p* *ff* *subp* *ff* ord.

Pno. *p* *ff* *p* *ff*

152

B♭ Cl.

VC Sul A Sul G

Pno. 6 7 Use the palms for the white notes (Clustered) 5 3

154

B♭ Cl. *fff* 7

VC Sul G Sul G Sul D L.H Trill with Tremolo bowing *fff*

Pno. 6 3 6 6 6 6 6 6

165

B \flat Cl.

VC

Pno.

3

3

6

6

8va

168

B \flat Cl.

VC

Pno.

pppp

niente

pppp

niente

8va